



Docket	:	A.15-07-015
Exhibit Number	:	ORA - _____
Commissioner	:	Catherine Sandoval
Administrative Law Judge	:	Jeanne McKinney
ORA Witness	:	Justin Menda



ORA  
OFFICE OF RATEPAYER ADVOCATES



**OFFICE OF RATEPAYER ADVOCATES**  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**

**\*\*\* PUBLIC VERSION (redacted) \*\*\***

**REPORT ON PLANT  
FOR BAYSHORE, BEAR GULCH, CHICO, REDWOOD  
VALLEY, & STOCKTON DISTRICTS**

**California Water Service Company  
Test Year 2017 General Rate Case  
A.15-07-015**

**San Francisco, California  
March 2016**

## MEMORANDUM

This Report on Plant for Bayshore, Bear Gulch, Chico, Redwood Valley and Stockton Districts of California Water Service Company GRC A.15-07-015 is prepared by Justin Menda, and under the general supervision of Program Manager Danilo Sanchez, and Program & Project Supervisor Ting-Pong Yuen of the *Office of Ratepayer Advocates (ORA) – Water Branch*. Mr. Menda's Statement of Qualifications is in Chapter 7 of ORA's Company-Wide Report on Results of Operations. Kerriann Sheppard and Christa Salo serve as ORA legal counsels.

# Report on Plant for Bayshore, Bear Gulch, Chico, Redwood Valley, Stockton Districts Table of Contents

Chapter 1: EXECUTIVE SUMMARY .....	1
A. INTRODUCTION .....	1
B. RECOMMENDATIONS .....	1
Chapter 2: Plant – Bayshore .....	2
A. INTRODUCTION .....	2
B. SUMMARY OF RECOMMENDATIONS .....	2
C. DISCUSSION .....	18
1. Specific Projects .....	18
a. Pipeline replacement (PIDs 99335, 99337, and 99338) .....	18
b. Pump replacement .....	19
c. Replace hydro-pneumatic tanks .....	22
d. Station San Carlos (SC) 106 rebuild (PID 98596) .....	25
e. San Mateo Station 22 rebuild (PID 98594) .....	26
f. Water supply projects (PIDs 102027, 102028, 98553, 98548, and 98589) .....	28
g. Replace SCADA software and hardware (PID 99103) .....	34
h. Panelboard replacement (PIDs 97866, 97893, 98172, 97982, and 97985) .....	34
i. Meter replacement program (PIDs SMD0900 and SSF0900) .....	35
j. Vehicle replacement (PIDs 99113, 99114, and 99115) .....	36
k. Replacement of control valves in Bayshore (PIDs 98506, 98510, 98514, and 98516) .....	36
l. Overhaul control valves in Bayshore (PIDs 98443, 98449, 98445, 98451, 98448, and 98454) .....	37
m. Tank mixing projects (PIDs 97632, 97759, 97761, 97763, and 97765) .....	39
n. Tank painting projects (PIDs 97840, 97843, 97847, 97883, 97997, and 98009) ....	41

o. Flow meter projects (PIDs 98325, 98304, 98533, and 99254) .....	44
p. San Carlos Station 103 Rebuild (PID 98495) .....	46
q. Well pumps and boosters at Station South San Francisco (“SSF”) 1 (PID 99293) ..	48
r. Projects related to new operations center (PIDs 98160, 98385, and 99296) .....	48
2. Non-Specific Budgets for 2016-2018 .....	50
3. Carry-Over Budget.....	50
a. Drill, develop, and equip well at Station 1 (PID 61318) .....	50
b. 80,000 gallon tank replacement at Station 124 (PID 63556) .....	51
c. Projects related to treatment plant at Station SSF 1 (PIDs 21064, 61596, and 61654) .....	51
4. Other Adjustments .....	54
a. Design and build storage tank at Station 27 (PID 20141) .....	54
b. Operations/Customer service center (PID 63397) and Office Furniture (PID 63402) .....	57
c. 2015 recorded plant.....	58
D. CONCLUSION.....	58
Chapter 3: Plant – Bear Gulch .....	59
A. INTRODUCTION .....	59
B. SUMMARY OF RECOMMENDATIONS .....	59
C. DISCUSSION.....	69
1. Specific Projects.....	69
a. Pipeline replacement (PIDs 99331, 99333, and 99334) .....	69
b. Pump replacement.....	70
c. Replace hydro-pneumatic tank at Station 19 (PID 98013) .....	73
d. Water supply projects (PIDs 102024, 97750, 99102, and 97869) .....	76
e. Automated metering reading (“AMR”) (PID 98471) .....	81
f. Panelboard replacement (PIDs 98692, 98546, 98682, and 98689).....	81
g. Replace SCADA software and hardware (PID 99104).....	82
h. Meter replacement program (PID BGD0900) .....	82
i. Vehicle replacement (PIDs 99116 and 99118) .....	82

j. Replace flow meters and vaults at Stations 4, 20, 33, 35, 36, and 38 (PID 98610).	83
k. Partial Station 38 rebuild (PID 97617)	83
l. Replacement of asphalt berm for St. 2-Tanks 1 and 2 and St. 5- Tanks 8 and 9 (PID 98056)	84
m. Replacement of control valves in Bear Gulch (PIDs 98521, 98522, and 98524)	84
n. Overhaul control valves in Bear Gulch (PIDs 98426, 98435, and 98442)	85
o. Projects related to Woodside Mutual and Skyline systems (PIDs 97631, 97559, 99325, 98344, 97302, 98036, 97519, and 97869)	85
p. Upper Low Zone mitigation (PID 98236)	88
q. Station 5- 3 MG welded steel storage tank (PID 97310)	89
r. Tank painting projects (PIDs 98082, 98098, 98108, 98119, 98134, 98141, and 98154)	92
2. Non-Specific Budgets for 2016-2018	95
3. Carry-Over Budget	95
a. Construct 250,000 gallon tank at Skyline System (PID 19633)	95
4. Other Adjustments	96
a. 2015 recorded plant	96
D. CONCLUSION	97
Chapter 4: Plant – Chico	98
A. INTRODUCTION	98
B. SUMMARY OF RECOMMENDATIONS	98
C. DISCUSSION	109
1. Specific Projects	109
a. Pipeline replacement (PIDs 99197, 99198, and 99200)	109
b. Pump replacement	110
c. Station overhaul projects (PIDs 97444, 97626, 97638, 97672, 97772, and 97767)	115
i. Station overhaul— Stations 16, 7, 11, 14, and 12 (PIDs 97444, 97626, 97638, 97772, and 97767)	116
ii. Station overhaul—Station 44 (PID 97672)	120
d. Tank painting	121

e. Vehicle replacement (PIDs 99119, 99121, and 99122) .....	121
f. Conservation garden at Station 34 (PID 97718) .....	122
g. Upgrade cathodic protection system at CH. St. 3-Tank 4 and CH St. 66- Tank 1 (PID 97454) .....	123
h. Replace SCADA software and hardware (PID 99106).....	124
i. Flow meter and vault replacement (PIDs 98734, 98735, and 98740) .....	124
j. Surface water supply feasibility study (PID 98037) .....	126
k. Purchase land for new well (PID 97980).....	127
l. Meter replacement program (PID CHD0900) .....	128
m. Well level transducers at 20 stations (PID 98714).....	129
n. Panelboard replacement projects (PIDs 98014, 98016, and 98032) .....	130
2. Non-Specific Budgets for 2016-2018 .....	130
3. 2015 Capital Budget.....	130
a. 2015 recorded plant.....	130
b. Well modification at Stations 55-01 and 68-01(PIDs 20905 and 20946).....	131
D. CONCLUSION.....	131
Chapter 5: Plant – Redwood Valley.....	132
A. INTRODUCTION .....	132
B. SUMMARY OF RECOMMENDATIONS .....	132
C. DISCUSSION .....	142
1. Specific Projects.....	144
a. Pipeline replacement (PIDs 99373, 99375, 99376, 99358, 99362, 99363, 99355, 99356 and 99357) .....	144
b. Membrane replacement (PIDs 98552, 98422, and 98459) .....	145
c. Replace roof at Well 4 shed (PID 98555) .....	147
d. Overflow airgap retrofit, install new safety climb rail, and remove exterior ladder cage (PID 98482) .....	147
e. Meter replacement program (PIDs RDV0900 and LUC0900) .....	148
i. Meter replacement program (PID RDV0900) .....	148
ii. Lucerne meter replacement program (PID LUC0900) .....	148

2. Non-Specific Budgets for 2016-2018 .....	149
3. 2015 Capital Budget.....	149
D. CONCLUSION.....	150
Chapter 6: Plant – Stockton .....	151
A. INTRODUCTION .....	151
B. SUMMARY OF RECOMMENDATIONS .....	151
C. DISCUSSION .....	157
1. Specific Projects.....	157
a. Pipeline replacement (PIDs 99368, 99370, and 99372) .....	157
b. Elevated tank replacement (PIDs 100140, 101020, and 101039).....	158
c. Panelboard replacement (PIDs 98353, 98369, and 98370).....	162
d. Vehicle replacement (PIDs 99250, 99251, and 99252) .....	163
e. Cathodic protection upgrade projects (PIDs 97664, 97666, and 97667) .....	163
f. Replace SCADA software and hardware (PID 99178).....	165
g. Flow meter and vault replacement (PIDs 98953 and 98954) .....	165
h. Meter replacement program (PID STK0900) .....	167
2. Non-Specific Budgets for 2016-2018 .....	167
3. Carry-Over Budget.....	167
a. Panelboard replacement at St. 7 (PID 63436).....	167
b. Flow meter replacement at St. 7 and 16 (PIDs 63433 and 63215) .....	168
4. 2015 Capital Budget.....	169
D. CONCLUSION.....	169
Chapter 7: Depreciation Reserve and Expense.....	170
A. INTRODUCTION .....	170
B. SUMMARY OF RECOMMENDATIONS .....	170
C. DISCUSSION .....	171
1. Adjustments .....	182
a. Antelope Valley .....	182
b. Bayshore .....	184

c. Bear Gulch .....	186
d. Livermore.....	188
e. Redwood Valley- Coast Springs.....	189
f. Redwood Valley- Lucerne .....	190
g. Westlake.....	191
D. CONCLUSION.....	192



## Chapter 1: EXECUTIVE SUMMARY

### A. INTRODUCTION

This report presents ORA's analysis and recommendations on Plant in Service for the Bayshore, Bear Gulch, Chico, Redwood Valley, and Stockton districts and depreciation in General Rate Case Application ("A.") 15-07-015 filed by California Water Service Company ("Cal Water" or "CWS"). The recommendations herein also reflect recommendations in ORA's Report on Plant – Common Issues which address issues affecting plant estimates for most or all CWS's districts.

### B. RECOMMENDATIONS

**Table 1-A** below provides a summary of recommended capital budgets for the districts covered in this report. Chapters two through six of this report present plant analysis and recommendations for Bayshore, Bear Gulch, Chico, Redwood Valley, and Stockton districts, respectively. Chapter seven present depreciation analysis and recommendations for all CWS's districts.

**Table 1-A: Capital Budget Summary - ORA's Recommended Plant Additions**

ORA Estimates (\$000)	2015	2016	2017	2018	Annual Average
Bayshore	\$ 7,824.4	\$ 12,411.4	\$ 5,526.1	\$ 6,571.6	\$ 8,083.4
Bear Gulch	\$ 966.0	\$ 4,341.5	\$ 3,547.0	\$ 5,528.0	\$ 3,595.6
Chico	\$ 2,606.6	\$ 3,419.6	\$ 3,394.0	\$ 2,989.6	\$ 3,102.5
Redwood Valley	\$ 291.2	\$ 378.9	\$ 246.8	\$ 255.3	\$ 293.0
Stockton	\$ 6,517.3	\$ 4,203.0	\$ 3,072.4	\$ 3,366.8	\$ 4,289.9

ORA recommends a total annual depreciation accrual (excluding transportation and contributed plant) of approximately \$67,207,562 in 2017 and \$68,419,038 in 2018. ORA's recommendation of depreciation accrual reflects ORA's recommendation of plant additions and adjustments to individual district asset account depreciation accrual rate.

## Chapter 2: Plant – Bayshore

### A. INTRODUCTION

This chapter presents ORA’s analyses and recommendations for Plant in Service for CWS’s Bayshore District. ORA reviewed and analyzed CWS’s testimony, application, Minimum Data Requirements, Water Supply and Facilities Master Plan, workpapers, capital project details, estimating methods and responses to various ORA data request. ORA also conducted a field investigation on August 4 and 5, 2015 of some of the proposed specific plant additions before making its own independent estimates including adjustments where appropriate.

### B. SUMMARY OF RECOMMENDATIONS

Based on ORA’s review and analysis of CWS’s requested plant additions, ORA recommends disallowance, adjustment, deferral or Advice Letter treatment where appropriate. These recommendations form the basis of ORA’s recommended capital budget summary presented in **Table 2-A** below. ORA’s estimate plant additions also reflect recommendations in ORA’s Report on Plant– Common Issues regarding pipeline replacement, meter replacement, vehicle replacement, Supervisory Control and Data Acquisition (“SCADA”) software and hardware replacement, control valve overhaul and replacement, non-specific budget, and 2015 recorded plant. **Table 2-B** presents ORA project-specific adjustments.

1                    **Table 2-A: Capital Budget Summary – Bayshore District Plant Additions**

Bayshore (\$000)	2015	2016	2017	2018	Annual Average
<b>ORA</b>	\$ 7,824.4	\$ 12,411.4	\$ 5,526.1	\$ 6,571.6	\$ 8,083.4
<b>CWS</b>	\$ 17,581.3	\$ 18,337.4	\$ 12,770.1	\$ 19,145.9	\$ 16,958.7
<b>CWS &gt; ORA</b>	\$ 9,756.9	\$ 5,926.0	\$ 7,244.0	\$ 12,574.3	\$ 8,875.3
<b>ORA as % of CWS</b>	45%	68%	43%	34%	47%

2  
3                    **Table 2-B: Capital Budget Details – Bayshore District**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00060795	Tank Turnover Equipment - Sta. 29 Tank 1 - San Mateo	\$ -	\$ 79,817	\$ 79,817	0%
2	00060861	Design and Construct Storage Tank - San Carlos	\$ -	\$ 1,000,000	\$ 1,000,000	0%
3	00062056	Upgrade CP System - Sta. 112 Beverly Tank 2	\$ -	\$ 9,586	\$ 9,586	0%
4	00062073	Upgrade CP System - Sta. 119 Tank 1	\$ 13,610	\$ 10,090	\$ (3,520)	135%
5	00062797	Panelboard Replacement - Sta. 24	\$ -	\$ 142,107	\$ 142,107	0%
6	00062832	2,350' 8" PVC; 18 1" Services; 1 4" Service; 8 Hydrants - 31st Ave. - San Mateo	\$ 877,465	\$ 769,222	\$ (108,243)	114%
7	00062972	Panelboard Replacement - Sta. 112 - San Carlos	\$ -	\$ 142,107	\$ 142,107	0%
8	00063020	Replace Pump & Motor - Sta. 2-A	\$ -	\$ 53,688	\$ 53,688	0%

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
9	00063047	Cowgill Alley - San Mateo - 1,340' 6" PVC; 32 1" Services; 1 2" Service; 4 4" Fire Services; 1 6" Fire Service; 2 Hydrants	\$ 839,756	\$ 480,000	\$ (359,756)	175%
10	00063063	Panelboard Replacement - Sta. 115	\$ -	\$ 142,107	\$ 142,107	0%
11	00063134	Panelboard Replacement & Genset - Sta. 106	\$ -	\$ 212,749	\$ 212,749	0%
12	00063998	Panelboard Replacement - Sta. 2	\$ -	\$ 193,648	\$ 193,648	0%
13	00064033	Replace Treatment Plant PLC and Controls - Sta. 1	\$ -	\$ 97,200	\$ 97,200	0%
14	00064733	Washington Street between Heather and Sweetwood - 1,500' 8" PVC; 51 1" Services; 3 Hydrants	\$ 826,142	\$ 523,200	\$ (302,942)	158%
15	00064943	Vehicle - 0.5 Ton Pick UP and Outfitting	\$ -	\$ 42,000	\$ 42,000	0%
16	00064945	Vehicle - 0.5 Ton Pick UP and Outfitting - Meter Reader	\$ -	\$ 42,000	\$ 42,000	0%
17	00064947	Vehicle - 0.5 Ton Pick UP with Accessories -	\$ -	\$ 42,000	\$ 42,000	0%
18	00065369	1,900' 6" PVC - N. Humboldt,	\$ 1,000,201	\$ 1,190,400	\$ 190,199	84%
19	00066249	Field - Light Tower	\$ -	\$ 20,000	\$ 20,000	0%
20	00066330	Field - Arrow Board	\$ -	\$ 10,000	\$ 10,000	0%
21	00069589	Tank Turnover Equipment - Sta. 11 Tanks 1 & 2	\$ -	\$ 95,150	\$ 95,150	0%
22	00069590	Tank Turnover Equipment - Sta. 101 Tank 1	\$ -	\$ 55,605	\$ 55,605	0%
23	00069749	Replace Hydrants	\$ -	\$ 60,000	\$ 60,000	0%

1

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
24	00075053	Fay/Willow Glen - 800' 6" PVC; 12 1" Services; 2 Hydrants	\$ -	\$ 291,600	\$ 291,600	0%
25	00075073	Parrott Drive, Wildwood, Treetop Lane and Oakley Rd. - 2,300' 6" DI; 44 1" Services; 6 Hydrants	\$ 436,443	\$ 835,200	\$ 398,757	52%
26	SMD0900	Meter Replacement Program	\$ -	\$ 380,757	\$ 380,757	0%
27	SSF0900	Meter Replacement Program	\$ -	\$ 117,321	\$ 117,321	0%
<b>Specifics Total</b>			<b>\$ 3,993,616</b>	<b>\$ 7,037,554</b>	<b>\$ 3,043,937</b>	<b>57%</b>
<b>Non-Specifics</b>			<b>\$ 1,269,875</b>	<b>\$ 2,082,850</b>	<b>\$ 812,975</b>	<b>61%</b>
<b>Carry-Overs Total</b>			<b>\$ 2,560,950</b>	<b>\$ 8,460,911</b>	<b>\$ 5,899,961</b>	<b>30%</b>
<b>TOTAL 2015</b>			<b>\$ 7,824,441</b>	<b>\$ 17,581,314</b>	<b>\$ 9,756,873</b>	<b>45%</b>

1

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098374	Garage port for equipment storage (i.e. compressor, forklift, booster, skip loader)	\$ 40,659	\$ 40,659	\$ -	100%
2	00098375	Lighting for CWS vehicle parking area and materials. The current lighting does not supply enough light at the operation yard (CWS vehicles, materials) Retire two existing light poles with Halogen lights.	\$ 98,937	\$ 98,937	\$ -	100%
3	00098380	Sludge area bin for Vac Truck spoils. Current bins is cracked and broken and do not meet current standards.	\$ 94,871	\$ 94,871	\$ -	100%
4	00098381	Install new spoil, sand, and rock bins with covers. Current bins are uncovered and bin walls are cracked and broken.	\$ 94,871	\$ 94,871	\$ -	100%

2

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
5	00098021	Trailers for CAT skid steers to be able to transport units to field if needed.	\$ 21,853	\$ 21,853	\$ -	100%
6	00098318	Trimble Navigation GPS device to document New main facility installations.	\$ 21,853	\$ 21,853	\$ -	100%
7	00098373	New shelving and racks for storeroom materials at Operation Center. Retire existing shelving that are falling apart.	\$ 10,927	\$ 10,927	\$ -	100%
8	00098376	New locating equipment for locating facilities. Retire two locating equipment.	\$ 16,390	\$ 16,390	\$ -	100%
9	00098377	Purchase Two New Oxygen Analyzers Abandon Two Oxygen Analyzers - RKI Model GX 2003 - Work Order 20620 Activity 3780-1	\$ 6,556	\$ 6,556	\$ -	100%
10	00098378	Color copy machine to print oversized maps and office color copier.	\$ 21,853	\$ 21,853	\$ -	100%
11	00098379	Two portable regulators	\$ 10,927	\$ 10,927	\$ -	100%
12	00098383	Pipe Racks for Operation Center yard.	\$ 21,853	\$ 21,853	\$ -	100%
13	00098384	Filing Cabinets	\$ 54,633	\$ 54,633	\$ -	100%
14	00098535	Purchase 5 Hach 900's and 4 Hach PH probes in order to perform various water quality tests.	\$ 10,927	\$ 10,927	\$ -	100%
15	00099113	2016 Vehicle Replacement Program Vehicle Replacements > 120,000 miles	\$ 243,661	\$ 243,661	\$ -	100%

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
16	00098548	Acquire land for new well.	\$ -	\$ 1,015,446	\$ 1,015,446	0%
17	00097866	Replace panelboard at San Mateo Sta. 27	\$ -	\$ 317,180	\$ 317,180	0%
18	00097893	Replace panelboard at San Mateo Sta. 24	\$ -	\$ 238,021	\$ 238,021	0%
19	00098495	Demolish existing White Oaks Tank and reconstruct pump station Sta. 103.	\$ 1,366,329	\$ 1,453,487	\$ 87,158	94%
20	00099278	Replace fencing at Sta.25 with new CWS standard 8 ft. fence with three strands of barbed wire on top. 550 ft.	\$ -	\$ 67,765	\$ 67,765	0%
21	00099280	Replace fencing at Sta. 107 with new CWS standard 8 ft. fence with three strands of barbed wire on top. 335 ft.	\$ -	\$ 27,106	\$ 27,106	0%
22	00099302	Replace roof and install gutters and paint building to prolong life of building	\$ 81,318	\$ 81,318	\$ -	100%
23	00099304	Install site drainage at Sta. 107 to keep runoff away from pumphouse, electrical panel and shed	\$ 67,765	\$ 67,765	\$ -	100%
24	00099307	Widen driveway and install safety railing at Sta. 115 in San Carlos.	\$ 284,442	\$ 284,442	\$ -	100%

1

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
25	00097618	Upgrade Cathodic Protection System on Mid Peninsula Tanks located at stations 17-T2, 119-T1, 24-T1, 24-T2, 25-T2	\$ 93,350	\$ 93,350	\$ -	100%
26	00097619	Upgrade Cathodic Protection System on Mid Peninsula Tanks located at stations 106-T2, 106-T3.	\$ 37,340	\$ 37,340	\$ -	100%
27	00098443	Overhaul of Control Valves in the Bayshore District - 2016	\$ 38,985	\$ 89,450	\$ 50,465	44%
28	00098261	Replace pump, foundation, and piping.	\$ 57,148	\$ 57,148	\$ -	100%
29	00098277	Replace transfer switch at San Mateo Sta. 29	\$ 56,384	\$ 56,384	\$ -	100%
30	00098325	Replace Flow meter and vault at Station 26, San Mateo	\$ -	\$ 11,628	\$ 11,628	0%
31	00098506	Replacement of 5 control valves in Mid Peninsula MPS (SC) 117, MPS (SC) 118, MPS 0-CV12, MPS 0-CV17, MPS 0-CV26	\$ 117,065	\$ 146,331	\$ 29,266	80%
32	00099335	The 2016 main replacement program will replace 13,834 feet of pipelines in the Bayshore district at an estimated cost of \$200 per foot.	\$ 3,467,941	\$ 4,124,847	\$ 656,906	84%
33	00098147	Hydrant Meter Reduced Pressure Principal Assembly	\$ 33,559	\$ 33,559	\$ -	100%
34	SMD0900	Meter Replacement Program	\$ 293,713	\$ 324,365	\$ 30,652	91%
35	00099279	Replace fence at Sta. 101 with new CWS standard 8ft fence with three strands of barbed wire on top. 350 ft.	\$ -	\$ 27,106	\$ 27,106	0%



2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
36	00097539	San Francisco CP System Upgrade - 2016 - Sta.11 Tank 1, Sta.11 Tank 2	\$ 37,340	\$ 37,340	\$ -	100%
37	00098449	Overhaul of Control Valves in the South San Francisco District - 2016	\$ 4,951	\$ 22,363	\$ 17,412	22%
38	00099293	Existing well pumps need to be upsized for the new head requirements including three electrical upgrades. Two boosters need to be replaced.	\$ -	\$ 406,964	\$ 406,964	0%
39	00098190	Hydrant Meter Reduced Pressure Principal Assembly	\$ 25,814	\$ 25,814	\$ -	100%
40	SSF0900	Meter Replacement Program	\$ 130,396	\$ 279,454	\$ 149,058	47%
41	00098160	Install 150 kW generator at MPS Operations Center	\$ -	\$ 196,492	\$ 196,492	0%
42	00098385	Additional Outdoor Furniture for new Customer/Operation Center. Plus need additional outdoor furniture for new building.	\$ -	\$ 21,853	\$ 21,853	0%
43	00099296	Install Security Windows in new building. No retirement asset	\$ -	\$ 196,060	\$ 196,060	0%
<b>Specifics Total</b>			<b>\$ 6,964,612</b>	<b>\$ 10,511,150</b>	<b>\$ 3,546,538</b>	<b>66%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 2,379,500</b>	<b>\$ 2,379,500</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ 5,446,738</b>	<b>\$ 5,446,738</b>	<b>\$ -</b>	<b>100%</b>
<b>TOTAL 2016</b>			<b>\$ 12,411,350</b>	<b>\$ 18,337,388</b>	<b>\$ 5,926,038</b>	<b>68%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098367	Purchase 3ea. Chemical Storage containers for Operation Center	\$ 55,998	\$ 55,998	\$ -	100%
2	00098368	Vacuum Truck for Potholing, leaks, tank cleaning & street cleaning. We will not be retiring our existing Vac Truck.	\$ 307,991	\$ 307,991	\$ -	100%
3	00099114	Vehicle Replacements > 120,000 miles	\$ 167,995	\$ 216,153	\$ 48,158	78%
4	00098123	Replace existing 3,000 gal hydropneumatic tank, foundation, and piping at Sta. 25.	\$ -	\$ 156,492	\$ 156,492	0%
5	00098166	Replace existing 3,000 gal hydropneumatic tank, foundation, and piping at Sta. 115.	\$ 156,492	\$ 156,492	\$ -	100%
6	00098172	Replace panelboard at SC 119	\$ -	\$ 256,615	\$ 256,615	0%
7	00099260	Replace fencing to new CWS standards of 8 ft. fences with three strands of barbed wire on top. 1,300 ft. in total.	\$ -	\$ 90,297	\$ 90,297	0%
8	00099266	Replace fencing at Sta. 28 to new CWS standards of 8 ft. fence with three strand barbed wire on top. 400 ft.	\$ -	\$ 41,676	\$ 41,676	0%

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
9	00099273	Replace fencing at Sta. 115 to new CWS standards to 8 ft. fences with three strands of barbed wire on top. 1,000 ft.	\$ -	\$ 69,459	\$ 69,459	0%
10	00099275	Replace fencing at Sta. 116 to new CWS standard of 8 ft. fence with three strands of barbed wire on top. 950 ft.	\$ -	\$ 83,351	\$ 83,351	0%
11	00099276	Install gutters at Sta. 6 pump building and improve drainage at site	\$ 27,784	\$ 27,784	\$ -	100%
12	00099287	Install gutter to improve drainage at site Sta. 28	\$ 13,892	\$ 13,892	\$ -	100%
13	00097622	Upgrade Cathodic Protection System on Mid Peninsula Tanks located at stations 25-T3, 27-T1, 27-T2, 29-T1, 30-T1	\$ 104,987	\$ 104,987	\$ -	100%
14	00097632	Tank Mixing Equipment San Mateo station 27 Tank 1 & 2	\$ -	\$ 325,719	\$ 325,719	0%
15	00097759	Tank Mixing Equipment San Mateo station 24 Tank 1 & 2	\$ -	\$ 121,659	\$ 121,659	0%
16	00098437	Install 30" manway and install steel coupons to close of the shell vents (4 on each tank) at both Tanks 1 & 2 at Sta.27 and replace the 48" cupola vent and install 3- 24" cupola vents at Sta.27 Tank 1	\$ 86,692	\$ 86,692	\$ -	100%
17	00098445	Overhaul of Control Valves in the Bayshore District - 2017	\$ 38,985	\$ 91,687	\$ 52,702	43%

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
18	00098479	Install an additional 30" manway, replace roof lip and floor chime, along with the berm around the tank- MPS Sta.23 Tank 1	\$ 237,281	\$ 237,281	\$ -	100%
19	00097877	Replacement of pump and 15 Hp motor.	\$ 53,922	\$ 53,922	\$ -	100%
20	00098123	Replace existing 3,000 gal hydropneumatic tank, foundation, and piping at Sta. 25.	\$ -	\$ 156,492	\$ 156,492	0%
21	00098172	Replace panelboard at SC 119	\$ -	\$ 256,615	\$ 256,615	0%
22	00099337	The 2017 main replacement program will replace 13,834 feet of pipelines in the Bayshore district at an estimated cost of \$200 per foot.	\$ 3,549,785	\$ 4,227,969	\$ 678,184	84%
23	00098510	Replacement of 5 control valves in Mid Peninsula MPS (SM) 002, MPS (SM) 003, MPS (SM) 006, MPS (SC) 118, MPS 0-CV44	\$ 59,996	\$ 149,989	\$ 89,993	40%
24	00102027	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ -	\$ 1,401,222	\$ 1,401,222	0%

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
25	00099277	Replace fencing at Sta. 12 to new CWS standards of 8 ft. fence with three strands of barbed wire on top. 900 ft.	\$ -	\$ 76,405	\$ 76,405	0%
26	00097652	Upgrade Cp system at San Francisco tanks - 12 -T1, 13 -T1	\$ 38,273	\$ 38,273	\$ -	100%
27	00098338	Install 30" manway and repair rafters ends at SSF 001-T1 and replace the existing vent with 24" cupola vent and replace roof hatch (24x24) at SSF 001-T2	\$ 76,479	\$ 76,479	\$ -	100%
28	00098420	Install 36" cupola vent and replace 10' of upper interior ladder at SSF Sta.11 Tank 1 and Install 30" manway, replace 10' of upper interior ladder and replace anti-climb door at SSF Sta.11 Tank 2.	\$ 41,582	\$ 41,582	\$ -	100%
29	00098451	Overhaul of Control Valves in the South San Francisco District - 2017	\$ 5,068	\$ 22,922	\$ 17,854	22%
30	00097876	Replacement of horizontal pump and 100Hp motor.	\$ 68,824	\$ 68,824	\$ -	100%
31	00102028	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ -	\$ 700,611	\$ 700,611	0%

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
32	SMD0900	Meter Replacement Program	\$ 300,645	\$ 332,474	\$ 31,829	90%
33	SSF0900	Meter Replacement Program	\$ 133,473	\$ 286,441	\$ 152,968	47%
<b>Specifics Total</b>			<b>\$ 5,526,144</b>	<b>\$ 10,334,446</b>	<b>\$ 4,808,302</b>	<b>53%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 2,435,700</b>	<b>\$ 2,435,700</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 5,526,144</b>	<b>\$ 12,770,146</b>	<b>\$ 7,244,002</b>	<b>43%</b>

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098038	Purchase 7 telog units in order to monitor system pressures. Retire 7 telog units	\$ 11,480	\$ 11,480	\$ -	100%
2	00099115	Vehicle Replacements > 120,000 miles	\$ 130,868	\$ 174,491	\$ 43,623	75%
3	00099300	Purchase 8 Hach 900's to perform various water samples	\$ 11,480	\$ 11,480	\$ -	100%
4	00097982	Replace panelboard at San Carlos Sta. 107	\$ -	\$ 264,139	\$ 264,139	0%
5	00097985	Replace panelboard MPS 112	\$ -	\$ 333,522	\$ 333,522	0%
6	00098180	Replace existing 3,000 gal hydropneumatic tank, foundation, and piping at Sta. 116.	\$ 160,404	\$ 160,404	\$ -	100%
7	00098186	Replace existing 3,000 gal hydropneumatic tank, foundation, and piping at Sta. 119.	\$ -	\$ 160,404	\$ 160,404	0%

2

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
8	00098553	Drill, Develop, and Equip San Mateo Well	\$ -	\$ 2,160,400	\$ 2,160,400	0%
9	00098594	Replace building Sta. 22 booster C, add portable generator quick connect, piping, and landscaping.	\$ 624,489	\$ 958,325	\$ 333,836	65%
10	00098596	Replace Sta. 106 building with pump shelter and install new panelboard outdoors. Replace fence, grade site, and install drainage. Install portable generator quick connect.	\$ 324,777	\$ 635,161	\$ 310,384	51%
11	00099281	Upgrade fencing at Sta. 112 with new CWS standard 8 ft. fence with three strands of barbed wire on top. 700 ft.	\$ -	\$ 71,196	\$ 71,196	0%
12	00098553	Drill, Develop, and Equip San Mateo Well	\$ -	\$ 2,160,400	\$ 2,160,400	0%
13	00097357	Upgrade Cathodic Protection System at Mid Peninsula Tanks 109-T2, 115-T1, 118-T1, 118-T2, 120-T1, 123-T3	\$ 117,691	\$ 117,691	\$ -	100%
14	00097761	Tank Mixing Equipment San Mateo station 17 Tanks 1, 2, & 3	\$ 176,751	\$ 176,751	\$ -	100%
15	00097763	Tank Mixing Equipment San Mateo station 25 Tanks 1, 2, & 3	\$ 143,251	\$ 143,251	\$ -	100%
16	00097765	Tank Mixing Equipment South San Francisco station 8 Tank 1	\$ 138,074	\$ 138,074	\$ -	100%
17	00098448	Overhaul of Control Valves in the Bayshore District - 2018	\$ 39,874	\$ 93,979	\$ 54,105	42%
18	00097879	Replacement of pump and 100Hp motor.	\$ -	\$ 70,488	\$ 70,488	0%

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
19	00097880	Replacement of pump and 75 Hp motor.	\$ 70,488	\$ 70,488	\$ -	100%
20	00097881	Replacement of pump and 75 Hp motor.	\$ 70,488	\$ 70,488	\$ -	100%
21	00097882	Replacement of pump and 15 Hp motor.	\$ 55,270	\$ 55,270	\$ -	100%
22	00097884	Replacement of pump and 40 Hp motor.	\$ -	\$ 55,270	\$ 55,270	0%
23	00097982	Replace panelboard at San Carlos Sta. 107	\$ -	\$ 264,139	\$ 264,139	0%
24	00097985	Replace panelboard MPS 112	\$ -	\$ 333,522	\$ 333,522	0%
25	00098278	Install portable generator quick connect at San Carlos Sta. 120	\$ 59,777	\$ 59,777	\$ -	100%
26	00098281	Install portable generator quick connect at San Mateo Sta. 26	\$ 59,777	\$ 59,777	\$ -	100%
27	00098514	Replacement of 5 control valves in Mid Peninsula MPS (SM) 025, MPS 0-CV45, MPS 0-CV47, MPS 0-CV63, MPS 0-CV65	\$ 153,739	\$ 153,739	\$ -	100%
28	00098533	Install a total of eight Flow meters at Stations 6, 12, 22, 23, 25, 27, 28, 29 San Mateo	\$ 42,266	\$ 338,129	\$ 295,863	13%
29	00099103	Replace the SCADA system server and software. This is a the district portion of a combined project to replace all of the SCADA system software and hardware throughout Cal Water.	\$ -	\$ 888,765	\$ 888,765	0%



2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
30	00099338	The 2018 main replacement program will replace 13,834 feet of pipelines in the Bayshore district at an estimated cost of \$200 per foot.	\$ 3,630,720	\$ 4,333,668	\$ 702,948	84%
31	SMD0900	Meter Replacement Program	\$ 307,500	\$ 340,787	\$ 33,287	90%
32	00098589	Drill, Develop, and Equip Well - Sta. 1-25	\$ -	\$ 1,213,378	\$ 1,213,378	0%
33	00097661	Upgrade Cp system at San Francisco tanks: 14-T1, 1-T1	\$ 39,230	\$ 39,230	\$ -	100%
34	00098454	Overhaul of Control Valves in the South San Francisco District - 2018	\$ 5,183	\$ 23,495	\$ 18,312	22%
35	00098516	Replacement of 2 control valves in South San Francisco. Location: SSF 0-CV3, SSF 0-CV4	\$ 61,495	\$ 61,495	\$ -	100%
36	00099254	Replace Flow meter and Vault at stations SSF-5,7,and 101	\$ -	\$ 158,256	\$ 158,256	0%
37	SSF0900	Meter Replacement Program	\$ 136,516	\$ 293,602	\$ 157,086	46%
<b>Specifics Total</b>			<b>\$ 6,571,587</b>	<b>\$ 16,654,908</b>	<b>\$ 10,083,321</b>	<b>39%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 2,491,000</b>	<b>\$ 2,491,000</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 6,571,587</b>	<b>\$ 19,145,908</b>	<b>\$ 12,574,321</b>	<b>34%</b>

1

2

3

## C. DISCUSSION

The Bayshore District recorded \$8,351,217 in annual average gross plant additions for the most recent six-year period (2009-2014).<sup>1</sup> **Table 2-C** compares CWS's and ORA's estimates against recorded annual average gross plant additions.

**Table 2-C: Capital Budget Proposals vs. Recorded Expenditures– Bayshore District**

Bayshore (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
<b>2009-2014 Recorded</b>	--	--	--	--	\$ 8,351.2	100%
<b>ORA</b>	\$ 7,824.4	\$ 12,411.4	\$ 5,526.1	\$ 6,571.6	\$ 8,083.4	97%
<b>CWS</b>	\$ 17,581.3	\$ 18,337.4	\$ 12,770.1	\$ 19,145.9	\$ 16,958.7	203%

ORA presents its analyses and recommended adjustments to CWS's requested capital budget for specific projects (Section 1), 2016-2018 Non-Specific projects (Section 2), and carry-overs (Section 3), and other adjustments (Section 4) below.

### 1. **Specific Projects**

#### *a. Pipeline replacement (PIDs 99335, 99337, and 99338)*

CWS requests approximately \$4,124,847, \$4,227,969, and \$4,333,668 to replace 13,834 feet of pipeline per year between 2016 and 2018, respectively. ORA evaluated the leak rate, water loss, system age, results of American Water Works Association's ("AWWA") recommended pipeline replacement model, historical replacement rate, and replacement cost for each district and provided a detailed evaluation of CWS's pipeline replacement proposal in ORA's Report on Plant – Common Issues Testimony (see ORA's Report on

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<sup>1</sup> Gross plant additions include company funded plant additions as well as contributions and advance deposits for specific plant.

1 Plant – Common Issues). **Table 2-D** below shows ORA’s recommendations for pipeline  
2 replacement and the associated budgets for Bayshore district.<sup>2</sup>

3 **Table 2-D: Pipeline Replacement Program Budget – Bayshore District**

YEAR	PID	ORA's Recommendation		CWS's Proposal	
		Length (ft)	Budget	Length (ft)	Budget
2016	00099335	9,922	\$ 3,467,941	13,834	\$ 4,124,847
2017	00099337	9,922	\$ 3,549,785	13,834	\$ 4,227,969
4 2018	00099338	9,922	\$ 3,630,720	13,834	\$ 4,333,668

5 ***b. Pump replacement***

6 **Table 2-E** shows CWS’s request for pump and motor replacement projects for the  
7 Bayshore district.

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<sup>2</sup> CWS request results in an annual replacement rate of 0.5% in the Bayshore district.

1      **Table 2-E: CWS’s Pump and Motor Replacement Request– Bayshore District**

Year	PID	Description	Cost
2016	97862	Replacement of pump and motor- SSF 1-21	\$ 61,936
2016	98261	Replacement of pump and motor- MPS 121-C	\$ 57,148
2017	97877	Replacement of pump and motor- MPS 120-A	\$ 53,922
2017	97876	Replacement of pump and motor-SSF 1-D	\$ 68,824
2018	97879	Replacement of pump and motor- MPS 26-B	\$ 70,488
2018	97880	Replacement of pump and motor- MPS 27-C	\$ 70,488
2018	97882	Replacement of pump and motor- MPS 119-B	\$ 55,270
2018	97884	Replacement of pump and motor- MPS 119-C	\$ 55,270
2018	97881	Replacement of pump and motor- MPS 27-D	\$ 70,488

2  
3      Pumps and motors should only be replaced when efficiency test and cost benefit analysis  
4      justify the need for replacement. ORA used the CWS rating system to evaluate need for  
5      pump replacement. Refer to ORA’s Report on Plant– Common Issues Testimony  
6      regarding a discussion of its methodology for evaluating the pump and motor  
7      replacement projects. CWS provided updated pump test performance test results in  
8      response to data requests JMI-002 and JMI-018.<sup>3</sup> **Table 2-F** shows the list of the pump  
9      efficiency and CWS rating from the most recent pump test.

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<sup>3</sup> CWS Response to ORA Data Request JMI-002, Q. 1.b and JMI-018, Q. 1.b.

1                    **Table 2-F: Pump and Motor Replacement Budgets – Bayshore District**

PID	Pump	Motor HP	Efficiency	CWS Rating
97862	SSF 1-21	40	48.22%	Low
98261	MPS 121-C	40	36.39%	Very Low
97877	MPS 120-A	15	43.39%	Low
97876	SSF 1-D	100	52.76%	Low
97879	MPS 26-B	100	71.89%	Very Good
97880	MPS 27-C	75	45.41%	Very Low
97882	MPS 119-B	15	42.28%	Low
97884	MPS 119-C	40	55.29%	Fair
97881	MPS 27-D	75	49.43%	Low

2

3     The pump test concludes that only some of the pumps are considered deficient. ORA

4     recommends the pumps with a rating of “low” (or very low) be replaced. [Table 2-G](#)

5     below shows ORA recommended pump and motor replacement projects.

**Table 2-G: ORA's Pump and Motor Replacement Project Recommendations–  
Bayshore District**

Year	PID	Description	Cost
2016	97862	Replacement of pump and motor- SSF 1-21	\$ 61,936
2016	98261	Replacement of pump and motor- MPS 121-C	\$ 57,148
2017	97877	Replacement of pump and motor- MPS 120-A	\$ 53,922
2017	97876	Replacement of pump and motor-SSF 1-D	\$ 68,824
2018	97879	Replacement of pump and motor- MPS 26-B	\$ 0
2018	97880	Replacement of pump and motor- MPS 27-C	\$ 70,488
2018	97882	Replacement of pump and motor- MPS 119-B	\$ 55,270
2018	97884	Replacement of pump and motor- MPS 119-C	\$ 0
2018	97881	Replacement of pump and motor- MPS 27-D	\$ 70,488

***c. Replace hydro-pneumatic tanks***

**Table 2-H** below shows CWS's request for hydro-pneumatic tank replacement projects for the Bayshore district.

**Table 2-H: Hydro-pneumatic Tank Replacement Budget – Bayshore District**

PID	Project Year	Tank	Description	Project Cost
98166	2017	SC 115	Replace Hydro-pneumatic tank at St. 115	\$ 156,492
98123	2017	SM 25	Replace Hydro-pneumatic tank at St. 25	\$ 156,492
98180	2018	SC 116	Replace Hydro-pneumatic tank at St. 116	\$ 160,404
98186	2018	SC 119	Replace Hydro-pneumatic tank at St. 119	\$ 160,404

CWS requests to replace the aforementioned tanks due to age and current condition of the tanks. ORA does not agree with the need to replace the hydro-pneumatic tanks at

1 Stations 25 and 119 due to the wall thickness exceeding the minimum thickness  
2 recommended in the inspection report prepared by Mistras Group Incorporated, and the  
3 number of patches.

4 CWS is concerned with the aging hydro-pneumatic tanks due to two failure incidents  
5 involving some of the pressure tanks in their districts since 2004.<sup>4</sup> In the memorandum  
6 prepared by CWS regarding the failure of the two pressure tanks, concerns included  
7 significant metal loss and operational pressure was above the certified pressure on the  
8 plate. In the incidence regarding the failure of pressure tank at Salinas Station 16, the  
9 operational pressure was 80-85 pounds per square inch (“psi”), approximately 60-70%  
10 above the certified pressure of 50 psi. Due to the two aforementioned incidences, CWS  
11 hired Mistras Group Incorporated to inspect the current hydro-pneumatic tanks in the  
12 system.<sup>5</sup> While ORA acknowledges CWS concern that the hydro-pneumatic tanks in the  
13 system are to be operated properly and safely, a hydro-pneumatic tank should not be  
14 taken prematurely out of service if it can be operated safely. ORA evaluated the various  
15 criteria CWS used to determine whether a tank needs to be replaced. ORA’s Report on  
16 Plant– Common Issues discusses the criteria whether a hydro-pneumatic tank should be  
17 replaced.

18 One criterion ORA determined whether the hydro-pneumatic tanks are operating at a safe  
19 pressure. ORA requested in data request JMI-010 for the number of incidences in the last  
20 five years (2010-2014) in which the pressure in the tanks exceeded the name plate

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<sup>4</sup> CWS Project Justification Report, page BAY PJ – 280, Lines 29 to 32. The failures occurred at pressure tanks Salinas Station 16 and Bakersfield Station 201. According to CWS, the interior surface of the metal corroded to a point where the entire end-cap section of the vessel ruptured and was propelled like a projectile from the remaining vessel with significant force.

<sup>5</sup> \*\*\* BEGIN CONFIDENTIAL \*\*\*

\*\*\*END CONFIDENTIAL\*\*\*

1 pressure.<sup>6</sup> In CWS's weighted average calculation, CWS states that the operational  
2 pressure for the hydro-pneumatic tanks at Station 25 and 119 is 50 psi. For both tanks at  
3 Stations 25 and 119, the operation pressure is less than the nameplate pressure of 100 psi.  
4 Based on the information provided, there is no evidence that the pressure in the hydro-  
5 pneumatic tanks is or has ever exceeded the nameplate pressure.

6 Since the recorded operating pressure (in which the pressure exceeded the nameplate  
7 pressure) for the tanks was not provided, ORA evaluated whether the hydro-pneumatic  
8 tank had a safe remaining wall thickness. In the incident that occurred at the hydro-  
9 pneumatic tank at Station 201 of the Bakersfield district, the failure report discussed the  
10 wall thickness of the tank.<sup>7</sup> ORA based the minimum safe wall thickness on the  
11 recommended minimum wall thickness provided in the inspection report prepared by  
12 Mistras Group Incorporated.<sup>8</sup> ORA projects the wall thickness by using the wall  
13 thickness provided in the CWS inspection report and reducing it by the average corrosion  
14 rate provided in the inspection report prepared by Mistras Group Incorporated through  
15 2018.<sup>9</sup> In the results of the wall thickness calculation, none of the wall thickness samples  
16 were less than the minimum recommended thickness.<sup>10</sup>

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<sup>6</sup> The name plate on the hydro-pneumatic tank displays the design specifications of the tank, such as installation date, certified design pressure, design temperature, and initial wall thickness.

<sup>7</sup> CWS Project Justification Report, page BAY PJ—298.

<sup>8</sup> \*\*\* BEGIN CONFIDENTIAL \*\*\*

[REDACTED]

\*\*\*END CONFIDENTIAL\*\*\*

<sup>9</sup> \*\*\* BEGIN CONFIDENTIAL \*\*\*

[REDACTED]



1 In the inspection report provided by CWS, there seems to be no recorded patches. In  
2 CWS's weighted average calculation to determine whether a hydro-pneumatic tank  
3 should be replaced, the total weighted average score gives the recommendation that the  
4 hydro-pneumatic tank should be replaced in a future GRC.<sup>11</sup> For the reasons mentioned  
5 above, ORA recommends deferring the replacement of the hydro-pneumatic tanks at  
6 Stations 25 and 119 to a future rate case.

7 *d. Station San Carlos (SC) 106 rebuild (PID 98596)*

8 CWS requests \$635,161 in 2018 to replace the existing building, panelboard, fencing, and  
9 site improvements at the station (fencing, erosion control, piping to accommodate the  
10 new equipment). During the last rate case (A.12-07-007), CWS has already replaced the  
11 panelboard and electrical equipment under PID 63134. CWS acknowledges that this  
12 scope of the project has already been covered in another project and provided in response  
13 to data request JMI-003 a revised cost estimate for the revised scope of the project.<sup>12</sup>

14 In addition to the revised budget provided by CWS in response to data request JMI-003,  
15 ORA does not agree with the replacement of the pump building. According to the  
16 company, the pump building needs to be replaced due to the age of the existing building  
17 and the condition of the interior paint of the building is deteriorating. During the district  
18 tour of the Bayshore district on August 5, 2015, ORA visited the Station 106 site. After

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\*\*\*END CONFIDENTIAL\*\*\*

<sup>11</sup> CWS Response to ORA Data Request JMI-010, Q. 1.d. The weighted average score calculation provided by CWS recommends replacement of the hydro-pneumatic tanks at Station 25 and Station 119 in the 2021 rate case.

<sup>12</sup> CWS Response to ORA Data Request JMI-003, Q. 1.

1 viewing the existing pump building, ORA believes that the only issue regarding the  
2 building is the condition of the paint interior of the ceiling of the building. In the Project  
3 Justifications document, it seems that the only issue with the pump building besides the  
4 age of the building is the interior is the condition of the paint.<sup>13</sup> It seems that the issue  
5 regarding the pump building can be resolved through maintenance, and does not warrant  
6 the complete replacement of the entire building. ORA removed the portions of the cost  
7 of the project related to new infrastructure to replace the pump building.<sup>14</sup> ORA  
8 recommends a budget of \$324,777.

9 *e. San Mateo Station 22 rebuild (PID 98594)*

10 CWS requests \$958,325 in 2018 to replace the pump building, booster C, installation of  
11 a portable generator quick connect, piping, and landscaping. ORA does not agree with  
12 the need to replace the pump building.

13 According to CWS, the station building was built in the 1950s and well pump C was  
14 installed in 1957.<sup>15</sup> CWS states that the existing building cannot be converted into an  
15 outdoor station since the City of San Mateo would probably not allow it due to the  
16 surrounding neighborhood and pump shelters which are not feasible due to the size and  
17 proximity of the pumps to one another.<sup>16</sup> The pumps and the building were installed  
18 relatively in the same period. One of the wells was installed in the building after the

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<sup>13</sup> A picture of the paint of the interior of the building is shown on page 435 of the CWS Project Justification Report for the Bayshore district.

<sup>14</sup> The infrastructure related to the replacement of the pump building is the acoustical pump shelter and the pump foundation.

<sup>15</sup> CWS Project Justification Report, page BAY PJ – 419, Lines 24 and 28.

<sup>16</sup> Ibid, page BAY PJ – 420, Lines 70 to 72 and 50 to 52.

1 building was built, meaning the company is able to install pumps in the current station  
2 building configuration. One concern is that if the current building configuration was not  
3 able to accommodate replacing pumps, then why was the building not modified when  
4 pump 22-D was installed in 1960 knowing that the pumps would eventually need to be  
5 replaced in the future. On August 5, 2015, ORA visited the existing building at Station  
6 22.<sup>17</sup> **Image 2-A** shows the exterior of the building at Station 22.

7 **Image 2-A: Station 22 Building Exterior**



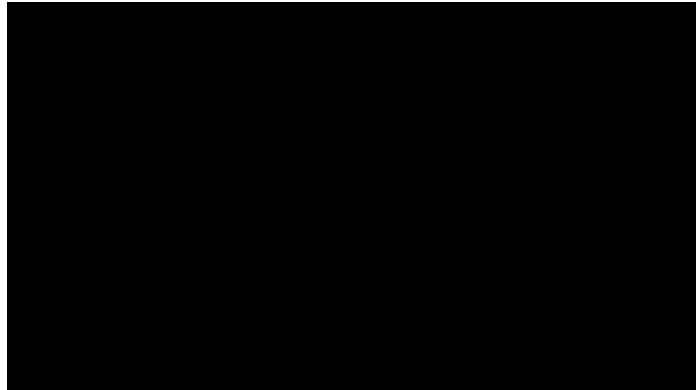
8  
9 From the image, it seems that the exterior of the building is in relatively good condition.  
10 There is some evidence of some cracking at the paving at the front porch of the building.  
11 The front porch maybe repaved if necessary, but it does not warrant the entire building to  
12 be replaced. **Image 2-B** shows the interior of the building at Station 22.

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<sup>17</sup> CWS Water Supply & Facilities Master Plan- Bayshore, page B-8.

1                                   **Image 2-B: Station 22 Building Interior**

2   **\*\*\*BEGIN CONFIDENTIAL\*\*\***



4   **\*\*\*END CONFIDENTIAL \*\*\*.**



6

7   Similarly, the interior of the building is in good condition. It appears that cleaning and  
8   replacing some of the wallpaper in the wall and ceiling will improve the condition of the  
9   building. ORA does not want to prematurely remove the pump building from service  
10   when the building is in good condition and can still provide a benefit to the ratepayers.  
11   ORA removed the cost to install a new building, and recommends a budget of \$624,489  
12   for the remainder of PID 98594.

13       ***f. Water supply projects (PIDs 102027, 102028, 98553, 98548, and 98589)***

14   CWS requests five projects in this rate case to reduce the district’s reliance of purchased  
15   water from the San Francisco Public Utilities Commission (“SFPUC”). **Table 2-I** shows  
16   CWS’s request for water supply projects in this rate case.

1

**Table 2-I: Water Supply Budgets – Bayshore District**

<b>Year</b>	<b>PID</b>	<b>Description</b>	<b>Project Cost</b>
2016	00098548	Acquire land for new well.	\$ 1,015,446
2017	00102027	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ 1,401,222
2017	00102028	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ 700,611
2018	00098553	Drill, Develop, and Equip San Mateo Well	\$ 1,015,446
2018	00098589	Drill, Develop, and Equip Well - Sta. 1-25	\$ 2,160,400
Total (2016-2018)			\$ 6,293,125

2

3 CWS's request includes the installation of two wells (PIDs 98589 and 98553), including  
4 the purchase of land to install the well (PID 98548 for the land portion in conjunction  
5 with PID 98553), and a brackish water aquifer conductivity test at the San Mateo

1 Wastewater Treatment Plant to determine the feasibility to yield brackish water for a  
2 possible desalination plant (PIDs 102027 and 102028).<sup>18</sup>

3 ORA evaluated whether the additional supply is necessary to meet the current demand of  
4 the system and whether the Bayshore system demand consistently exceeds the Individual  
5 Supply Guarantee (“ISG”) from SFPUC.<sup>19</sup> During a presentation CWS provided to ORA  
6 during the Bayshore district tour on August 4, 2015, it shows that the total combined  
7 demand for CWS’s Bayshore and Bear Gulch districts has been consistently under the  
8 Individual Supply Guarantee from the SFPUC of 35.68 million gallons per day  
9 (“MGD”).<sup>20</sup> Therefore, it seems the need for additional supply from the proposed wells  
10 or desalination plant is not necessary at this time. CWS is worried that under drought  
11 conditions, the SFPUC would implement mandatory cutbacks of 10-20% system wide.<sup>21</sup>  
12 Despite being one of the worst droughts in the last 40 years, CWS has submitted no  
13 evidence showing any cutbacks imposed by the SFPUC. Furthermore, in the event of a  
14 drought, a reduction of purchased water demand due to a reduction in customer demand  
15 would likely follow. Under Executive Order B-29-15, Governor Brown ordered the State

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<sup>18</sup> The total of \$2,101,833 in 2017 for Bayshore district portion of the brackish water investigation study portion is divided into two projects among the Mid-Peninsula (PID 102027) and the South San Francisco (PID 102028) service areas. For PID 98589, CWS request \$1,213,378 in 2018 to develop a well to fulfill future demand and to reduce the system’s reliability on purchased water from SFPUC. For PID 98553, CWS request \$2,160,400 in 2018 to build a well in San Mateo to fulfill future demand and to reduce the system’s reliability on purchased water from SFPUC and to purchase land to install the well (\$1,015,446 in 2016 for PID 98548).

<sup>19</sup> The Individual Supply Guarantee is the available SFPUC supply that is entitled to CWS for their suburban customers. The Individual Supply Guarantee is set and limited by contract and is express as an average annual amount.

<sup>20</sup> During the district tour of the Bear Gulch district on September 22, 2015, CWS informed ORA that the company’s combined (Bear Gulch and Bayshore) SFPUC purchased amount was 33.58MGD and 30.93MGD for 2013 and 2014, respectively.

<sup>21</sup> CWS Project Justification Report, page BAY PJ—375.

1 Water Resources Control Board to implement a statewide reduction of 25% in potable  
2 urban water usage (compared to the usage in 2013) through February 28, 2016. On  
3 February 2, 2016, the Water Board issued Resolution 2016-0007 extending the drought  
4 restrictions through October 2016. In addition, the reliance on purchased water will also  
5 be reduced with the installation of the adopted wells in San Mateo (PIDs 61336 and  
6 61972) and in South San Francisco (well 1-24; PID 61318) from the last rate case. CWS  
7 expects the aforementioned well projects to be placed into service during this rate case.<sup>22</sup>

8 The total estimated cost of \$2,802,444 for the brackish water conductivity test is shared  
9 among the Bayshore and Bear Gulch districts.<sup>23</sup> The aquifer test would consist of  
10 installing and operating vertical and horizontal direction drilling (“HDD”) monitoring  
11 and pilot test wells. If the yield tests prove favorable, then a brackish desalination plant  
12 would be considered for development in the future.<sup>24</sup> CWS is intending on pursuing a  
13 partnership with the Bay Area Water Supply and Conservation Agency (“BAWSCA”)  
14 and the City of San Mateo. BAWSCA is currently pursuing grant funding. If BAWSCA  
15 is successful in obtaining a grant, then the actual cost of the feasibility study would be  
16 reduced by the grant amount.<sup>25</sup> However, if BAWSCA is unsuccessful in obtaining a

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<sup>22</sup> The San Mateo Well (PID 61336) is expected to be placed into service in 2017 and Well 1-24 (PID 61318) is expected to be placed into service in 2016.

<sup>23</sup> The total cost of the feasibility test would be divided by the following: 25% of the cost is allocated to the Bear Gulch district and 75% of the cost is allocated to the Bayshore district (50% to Mid-Peninsula (San Carlos and San Mateo) and 25% to South San Francisco). PID 102027 is for the Mid-Peninsula portion of the project and PID 102028 is for the South San Francisco portion of the project.

<sup>24</sup> If the results of the conductivity test prove favorable, CWS intends on refining the cost for a 6.5 MGD brackish water desalination plant.

<sup>25</sup> CWS Project Justification Report, page BAY PJ – 374.

1 grant funding then BAWSCA would not likely proceed with the conductivity tests.<sup>26</sup>  
2 This would mean that CWS ratepayers would be solely responsible for the entire cost of  
3 the conductivity tests and the future infrastructure for the desalination plant.<sup>27</sup> During the  
4 district tour of the Bayshore district, CWS stated that grant funding has currently not  
5 been accepted for the project.<sup>28</sup> ORA disagrees with this project due to the uncertainty of  
6 the total cost of the project borne to the ratepayers. BAWSCA shows that the capital cost  
7 for a 5MGD capacity desalination plant ranges from \$111 million to \$141 million  
8 utilizing subterranean bay HDD well intake (in 2014 dollars).<sup>29</sup> The supplemental supply  
9 ultimately provided by the project is not currently needed to supply the district, due to the  
10 uncertainty of alternative funding sources, and the high risk that would be borne by

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<sup>26</sup> Ibid.

<sup>27</sup> In the Bay Area Water Supply and Conservation Agency Long-Term Reliable Water Supply Strategy Phase II Final Report prepared by CDM Smith, the estimated cost for a 5 MGD plant would cost approximately \$141 million.

<sup>28</sup> In the BAWSCA Strategy Phase II Final Report on the Long Term Reliable Water Supply Strategy identifies the following grant funding opportunities: California Proposition 84, Proposition 1, Water Quality, Supply and Infrastructure Act of 2014, and Water in the 21<sup>st</sup> Century Act. According to BAWSCA, the projects eligible for Prop 84 funding include water supply, wastewater, groundwater management, watershed protection, stormwater, and ecosystem restoration. The California's Proposition 1, the Water Supply Quality, Supply, and Infrastructure Improvement Act is for statewide projects for increasing water supply, protecting and restoring watersheds, improving water quality, and flood protection. Funds from the Water Bond would become available from state agencies through a competitive grant process, except for water storage projects which would be chosen by the California Water Commission. Water in the 21<sup>st</sup> Century Act (Senate 2771/House of Representatives) would result in an increase in availability for grants and low interest long term loans through the Bureau of Reclamation. BAWSCA intends on applying for the 2015 round of Proposition 84 grant funding.

<sup>29</sup> CWS Project Justification Report, page BAY PJ—381. In the Bay Area Water Supply and Conservation Agency Long-Term Reliable Water Supply Strategy Phase II Final Report prepared by CDM Smith, the estimated annual unit cost for a 5 MGD plant (using subterranean bay HDD well intake) would cost approximately \$1,810 to \$2,190 per AF (in 2014 dollars).



1 ratepayers due to the uncertainty and speculative nature of the project including a lack of  
2 any documentation pertaining to the California Environmental Quality Act (“CEQA”)  
3 approvals which require significant period of time; therefore, ORA recommends not  
4 allowing PIDs 102027 and 102028 into rates. In the future if there is a cutback severe  
5 enough to warrant the need for additional supply, CWS needs to look at less costly  
6 options that are available such as recycled water or groundwater and storage to meet  
7 customer demand rather than constructing a costly desalination plant. For PIDs 98553  
8 and 98548, one concern with this project is the availability of land to develop a new well.  
9 In the previous rate case, a similar project was adopted (PID 61336) to develop a new  
10 well in San Mateo.<sup>30</sup> According to CWS, there is currently no identified land for CWS to  
11 drill on and that vacant lots and groundwater sources are difficult to obtain in San  
12 Mateo.<sup>31</sup> CWS is currently communicating with the City of San Mateo to acquire  
13 property as a long term lease, purchase property, or obtain an easement.<sup>32</sup> Although a  
14 definite location still does not exist, CWS now anticipates that PID 61336 to be placed  
15 into service in 2017. Given the difficulty and remaining uncertainty regarding a location  
16 for PID 61336, it seems highly uncertain whether additional land can be obtained within  
17 the timeframe of the current GRC for installation of a new well. For the reasons  
18 mentioned here and the supply needs above, ORA recommends the Commission  
19 disallow PIDs 98553 and 98548 in rates.

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<sup>30</sup> PID 61336 was originally supposed to be placed into service in 2014.

<sup>31</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 74.

<sup>32</sup> Ibid, Attachment C, page 77. PID 61972 has a similar project scope as PID 98548.

1 ***g. Replace SCADA software and hardware (PID 99103)***

2 CWS requests \$888,765 in 2018 to replace the SCADA hardware and software due to age  
3 (will no longer be supported) and reconfigure the protocol in which data is collected in  
4 the district. CWS is proposing to install automatic pump controls at each station to  
5 connect directly with the SCADA at the district operations center. This project is part of  
6 a larger overall project that is proposed in multiple districts for the SCADA Master Plan.  
7 For reasons identified in ORA's Report on Plant-Common Issues on SCADA, ORA  
8 recommends the Commission disallow this project.

9 ***h. Panelboard replacement (PIDs 97866, 97893, 98172, 97982, and 97985)***

10 **Table 2-J** below shows CWS's request for panelboard replacement projects for the  
11 Bayshore district due to the age and the condition of the panelboards.

12 **Table 2-J: Panelboard Budgets – Bayshore District**

PID	Project Year	Description	Project Cost
97866	2016	Replace panelboard at San Mateo Sta. 27	\$ 317,180
97893	2016	Replace panelboard at San Mateo Sta. 24	\$ 238,021
98172	2017	Replace panelboard at SC 119	\$ 256,615
97982	2018	Replace panelboard at San Carlos Sta. 107	\$ 264,193
97985	2018	Replace panelboard MPS 112	\$ 333,522
Total (2016-2018)			\$ 1,409,531

13  
14 For reasons identified in ORA's Report on Plant- Common Issues Testimony on  
15 panelboard, ORA recommends the Commission disallow the projects listed in **Table 2-J**

1 above. In addition, the replacement of the panelboard at Stations 112 and 24 are already  
2 being replaced as part of the adopted PIDs 62972 and 62797, respectively from the 2012  
3 rate case.<sup>33</sup> Therefore, ORA removed the duplicative CWS request to replace the  
4 panelboards at Station 112 and 24.

5 *i. Meter replacement program (PIDs SMD0900 and SSF0900)*

6 **Table 2-K** below lists ORA's recommendation on the replacement budget of small and  
7 large meters in the Bayshore district. ORA provides a discussion of its recommendation  
8 in its Report on Plant– Common Issues.

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<sup>33</sup> PID 62972 is originally expected to be placed into service in 2015. CWS does not anticipate the cost of PID 62972 to exceed the adopted cost of \$142,107. PID 62797 is originally expected to be placed into service in 2015. CWS does not anticipate the cost of PID 62972 to exceed the adopted cost of \$142,107.

**Table 2-K: Meter Replacement Budgets – Bayshore District**

District:	Bayshore - Mid-Peninsula		
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	SMD0900	\$ 293,713	\$ 324,365
2017	SMD0900	\$ 300,645	\$ 332,474
2018	SMD0900	\$ 307,500	\$ 340,787

District:	Bayshore - South San Francisco		
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	SSF0900	\$ 130,396	\$ 279,454
2017	SSF0900	\$ 133,473	\$ 286,441
2018	SSF0900	\$ 136,516	\$ 293,602

*j. Vehicle replacement (PIDs 99113, 99114, and 99115)*

CWS requests \$243,661, \$216,153, and \$174,491 in 2016-2018, to replace vehicles based on the mileage of the vehicle. CWS applies a 120,000 mile replacement criterion to vehicles regardless of the vehicle's gross vehicle rate weighting. For the reasons presented in ORA's Report on Plant– Common Issues, ORA recommends the Commission disallow the cost to replace two vehicles.<sup>34</sup> ORA recommends \$243,661, \$167,995, and \$130,868 for PIDs 99113, 99114, and 99115, respectively.

*k. Replacement of control valves in Bayshore (PIDs 98506, 98510, 98514, and 98516)*

**Table 2-L** shows CWS's request for its annual 2016-2018 request to replace control valves.

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<sup>34</sup> ORA recommends disallowing one vehicle in 2017 and one vehicle in 2018.

**Table 2-L: Control Valve Replacement Budget – Bayshore District**

PID	Service Area	Year	# Control Valves to be Replaced	Project Cost
00098506	Mid-Peninsula	2016	5	\$ 146,331
00098510	Mid-Peninsula	2017	5	\$ 149,989
00098514	Mid-Peninsula	2018	5	\$ 153,739
00098516	South San Francisco	2018	2	\$ 61,495

For the reasons presented in ORA’s Report on Plant – Common Issues, ORA recommends replacing four control valves in 2016, two control valves in 2017, and five control valves in 2018, which results in a recommended budget of \$117,065, \$59,996, and \$153,739 for PIDs 98506, 98510, and 98514, respectively for the Mid-Peninsula service area. In addition, ORA recommends replacing two control valves in 2018, which results in a recommended budget of \$61,495 in 2018 for PID 98516 for the South San Francisco service area.

***1. Overhaul control valves in Bayshore (PIDs 98443, 98449, 98445, 98451, 98448, and 98454)***

**Table 2-M** shows CWS’s request for its annual 2016-2018 request to overhaul control valves.

**Table 2-M: Control Valve Overhaul Budget – Bayshore District**

PID	Service Area	Year	Project Cost
00098443	Mid-Peninsula	2016	\$ 89,450
00098449	South San Francisco	2016	\$ 22,363
00098445	Mid-Peninsula	2017	\$ 91,687
00098451	South San Francisco	2017	\$ 22,922
00098448	Mid-Peninsula	2018	\$ 93,979
00098454	South San Francisco	2018	\$ 23,495

CWS requests to replace the tubing and internal parts of some of the valves and clean and reuse the body of the valve. For the reasons presented in ORA’s Report on Plant – Common Issues, ORA recommends an annual budget of \$38,086, \$38,985, and \$39,874 for 2016-2018, respectively for the Mid-Peninsula service area. In addition, ORA

recommends an annual budget of \$4,951, \$5,068, and \$5,183 for 2016-2018, respectively for the South San Francisco service area. Fence replacement projects (PIDs 99278, 99279, 99280, 99260, 99266, 99273, 99275, 99277, and 99281)

**Table 2-N** shows CWS's annual spending in years 2016-2018 pertaining to its request to replace fences at various stations.

**Table 2-N: Fence Replacement Budget – Bayshore District**

Year	PID	Station	Project Cost
2016	99278	25	\$ 67,765
2016	99279	101	\$ 27,106
2016	99280	107	\$ 27,106
2017	99260	6	\$ 90,297
2017	99266	28	\$ 41,676
2017	99273	115	\$ 69,459
2017	99275	116	\$ 83,351
2017	99277	12	\$ 76,405
2018	99281	112	\$ 71,196

CWS requests to replace the existing fences at the aforementioned stations due to the age of the existing fencing. CWS states that the new fence would include a new eight-foot tall chain link perimeter fencing with three-strand barbed wire outriggers.<sup>35</sup>

According to CWS, the cost for repairs due to vandals can be extensive and damage to facilities can be detrimental to the system.<sup>36</sup> ORA inquired of CWS on the security issues involving the aforementioned stations. CWS informed ORA that there have been no documented break-ins at the sites during the 2011-2015 periods. In addition, ORA

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<sup>35</sup> CWS Response to ORA Data Request DG-022, Q. 1.a.

<sup>36</sup> CWS Response to ORA Data Request JMI-003, Q. 3.

1 inquired about the amount of maintenance required (including associated cost) to  
2 maintain the existing fence at the aforementioned stations. According to CWS, the  
3 recorded repairs to fences were not available for the last five years (2010-2014). CWS  
4 states that any costs associated to repairing the existing fences would be minimal.<sup>37</sup>  
5 Since there are no records for repairs or incidences of break-ins, the replacement of the  
6 fences is not necessary.

7 In addition, CWS states at Station 115 (PID 99273) that new fencing needs to be installed  
8 due to the screening a future adopted tank project.<sup>38</sup> The cost estimate for this future tank  
9 (PID 60681) already includes a budget for a new fence.<sup>39</sup> ORA recommends that none of  
10 the fence replacement projects should be allowed into rates.

11 *m. Tank mixing projects (PIDs 97632, 97759, 97761, 97763, and 97765)*

12 **Table 2-O** below shows CWS's request for tank mixing projects in 2016-2018 for the  
13 Bayshore district.

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<sup>37</sup> CWS Response to ORA Data Request JMI-020, Q. 1.b.

<sup>38</sup> Ibid, Q. 1.a. PID 60861 from the 2012 rate case is expected to be placed into service in 2015.

<sup>39</sup> CWS Project Justification Report, page BAY PJ—85 from A.12-07-007.

**Table 2-O: CWS's Tank Mixing Budgets – Bayshore District**

Year	PID	Station	Tank Number	Project Cost
2017	00097632	SM 27	1 & 2	\$ 325,719
2017	00097759	SM 24	1 & 2	\$ 121,659
2018	00097761	SM 17	1, 2, & 3	\$ 176,751
2018	00097763	SM 25	1, 2, & 3	\$ 143,251
2018	00097765	SSF 8	1	\$ 138,074

CWS requests to install the mixing system in existing tanks to prevent the conditions that cause nitrification (such as stagnation and stratification due to poor circulation). In order to determine whether the tank mixing system is needed, ORA determined whether the chlorine levels are decreasing and whether there are incidences where the nitrite concentration of the water in the tanks exceed the maximum contaminant level (“MCL”).

In response to data request JMI-021, CWS provided to ORA the historic chlorine levels in the aforementioned tanks in the past five years (2010-2014). ORA evaluated the provided data to determine whether the residual chlorine level in the tanks has a minimum level of 0.2 parts per million (“ppm”). In addition, CWS provided to ORA in response to JMI-021 the historic nitrite levels in the aforementioned tanks in the past five years (2010-2014). ORA evaluated the provided data to determine whether the nitrite concentration did not exceed the MCL of 1 ppm.<sup>40</sup> Based on the information provided by CWS, there were no recorded incidences where the Beresford storage tanks (Station 27) or the Yorktown storage tanks (Station 24) had a residual chlorine level less than 0.2 ppm or a nitrite concentration greater than 1 ppm. Since there is adequate residual chlorine level in the aforementioned tanks and the nitrite concentrate does not exceed the MCL, it seems that a tank mixing system is not necessary for the Beresford or Yorktown storage

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<sup>40</sup> <http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm>



1 tanks.<sup>41</sup> ORA removed the cost of the aforementioned projects. ORA's recommendation  
2 regarding the tank mixing projects is shown in **Table 2-P** below.

3 **Table 2-P: ORA's Recommended Tank Mixing Budgets – Bayshore District**

Year	PID	Station	Tank Number	Project Cost
2017	00097632	SM 27	1 & 2	\$ 0
2017	00097759	SM 24	1 & 2	\$ 0
2018	00097761	SM 17	1, 2, & 3	\$ 176,751
2018	00097763	SM 25	1, 2, & 3	\$ 143,251
2018	00097765	SSF 8	1	\$ 138,074

4  
5 *n. Tank painting projects (PIDs 97840, 97843, 97847, 97883, 97997, and 98009)*

6 **Table 2-Q** below shows CWS's request for tank painting projects in 2016-2018 for the  
7 Bayshore district.

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<sup>41</sup> ORA does not oppose the need for the tank mixing projects for the Willshire tanks (Station 17; PID 97761), Lincoln tanks (Station 15; PID 97763), and the reservoir at Station 8 since there have been recorded incidences over the past five years (2010-2014) where the residual chlorine levels was less than 0.2 ppm.

**Table 2-Q: CWS's Tank Painting Budgets – Bayshore District**

Year	PID	Service Area	Tank	Interior and/or Exterior	Project Cost
2017	97840	Mid-Peninsula	St. 27-T1	Interior	\$ 797,106
2017	97843	Mid-Peninsula	St. 33-T2	Exterior	\$ 93,073
2017	97847	Mid-Peninsula	St. 106-T3	Interior	\$ 206,877
2017	97883	Mid-Peninsula	St. 115-T1	Interior Exterior (partial)	\$ 148,415
2017	97997	South San Francisco	St. 11-T2	Interior	\$ 140,987
2017	98009	South San Francisco	St. 1-T1&2	Interior (T1) Exterior (T2)	\$ 251,686

ORA does not object to need for the tank painting projects. For the tank painting projects PIDs 97997 and 97840, ORA adjusted the cost of the project based on lower contingency cost. CWS divides the indirect cost into two categories: Consumables, Waste Management, Etc. and Contingency. ORA does not oppose the calculation for the Consumables, Waste Management, etc. Line item, but adjusted the contingency line item due to an arithmetic error in CWS workpapers.<sup>42</sup> CWS uses a 10% contingency of the direct cost subtotal. ORA identified an inconsistency in what is shown in the contingency line item of the cost estimate and the cost estimate methodology for calculating contingency. For example, CWS estimates a direct subtotal of \$581,490 for PID 97840. Using CWS's methodology of 10% of the direct subtotal, the contingency line item should be \$58,149. However, CWS's cost estimate shows \$110,708 in the

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<sup>42</sup> CWS estimates the Consumables, Waste Management, Etc. Line item as 5% of the direct cost subtotal. The direct cost subtotal is the sum of the total contractor cost and the direct internal labor.

1 Contingency line item. ORA used a contingency of \$58,149, which is consistent with  
2 CWS's methodology for calculating contingency for tank painting projects.<sup>43</sup> The total  
3 indirect cost is calculated by adding the Contingency and Consumables, Waste  
4 Management, Etc. line items. The total indirect cost should be \$87,224 (\$58,149  
5 Contingency + \$29,074.50 Consumables, Waste Management, Etc., or 10% of direct cost  
6 subtotal + 5% of direct cost subtotal) instead of the \$139,783 total indirect cost CWS  
7 estimates (\$110,708 Contingency + \$29,074.50 Consumables, Waste Management,  
8 Etc.).<sup>44</sup> ORA adjusted the total cost estimate for the corrected lower contingency  
9 estimate. **Table 2-R** shows ORA's recommended cost estimate for the proposed tank  
10 painting projects.

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<sup>43</sup> Similarly for PID 97997, CWS estimates a direct subtotal of \$100,191. Using CWS's methodology of 10% of the direct subtotal, the contingency line item should equal \$10,019.10. However, the cost estimate shows \$18,808 in the contingency line item. ORA used a contingency of \$10,019.10, which is consistent with CWS's methodology for calculating contingency for tank painting projects.

<sup>44</sup> Similarly for PID 97997, the total indirect should be \$15,029 (\$10,019 Contingency + \$5,010 Consumables, Waste Management, Etc.) instead of the \$23,054 (\$18,044 Contingency + \$5,010 Consumables, Waste Management, Etc.) total indirect cost CWS estimates.

1 **Table 2-R: ORA Recommended Tank Painting Budgets – Bayshore District**<sup>45</sup>

Year	PID	Tank	Project Cost
2017	97840	St. 27-T1	\$ 720,131
2017	97843	St. 33-T1&2	\$ 93,073
2017	97847	St. 106-T3	\$ 206,877
2017	97883	St. 115-T1	\$ 148,415
2017	97997	St. 11-T2	\$ 124,079
2017	98009	St. 1-T1&2	\$ 251,686

2  
3 *o. Flow meter projects (PIDs 98325, 98304, 98533, and 99254)*

4 **Table 2-S** below shows CWS’s proposed flow meter projects.

5 **Table 2-S: Proposed Flow Meter Projects– Bayshore District**

Year	PID	Description	Project Cost
2016	98325	Replace Flow meter and vault at Station 26, San Mateo	\$ 11,628
2016	98304	Replace Flow meter and vault at Station 2 and Station 4	\$ 97,867
2018	98533	Install a total of eight Flow meters at Stations 6, 12, 22, 23, 25, 27, 28, 29 San Mateo	\$ 338,129
2018	99254	Replace Flow meter and Vault at stations SSF-5,7,and 101	\$ 158,256

6  
7 ORA does not agree with the need to replace the flow meter and vaults related to PIDs  
8 98325, 98304, 99254, and the flow meters and vaults at Stations 6, 22, 23, 25, 27, 28, 29  
9 as part of PID 98533. ORA requested from CWS the maintenance records regarding the

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<sup>45</sup> In addition to an adjustment to the contingency line item, there was an adjustment to the escalation line item. The escalation line item is calculated based on a percentage of the subtotal cost (direct and indirect costs).

1 flow meters from the past six years (2009-2014). ORA reviewed the maintenance  
2 records for the Bayshore district (Mid-Peninsula and South San Francisco) and noticed  
3 that there has not been any record of maintenance for the aforementioned flow meters.<sup>46</sup>  
4 Since it seems that there is no evidence that the flow meters are malfunctioning, it is not  
5 necessary to replace the aforementioned flow meters. Refer to ORA's Report on Plant-  
6 Common Issues regarding ORA's methodology for evaluating the flow meter  
7 replacement projects.

8 ORA adjusted the project cost for PID 98533 proportionally based on the number of flow  
9 meters ORA believes needs to be replaced. CWS estimates the unit cost of the flow  
10 meter and vault based on a quote estimates, regardless of the size of the flow meter.<sup>47</sup>  
11 Since CWS uses the same unit cost for the flow meter and vault regardless of the size of  
12 meter, ORA similarly adjusted the CWS labor proportionally based on the number of  
13 flow meters ORA found appropriate to replace. ORA recommends that only one of the  
14 eight flow meters associated with PID 98533 should be replaced, resulting in a budget of  
15 \$42,266 (or 12.5% of CWS's proposed cost of \$338,129). ORA recommends \$0 for  
16 PIDs 98325, 98304, and 99254.

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<sup>46</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i.

<sup>47</sup> CWS estimates the unit cost for the flow meter vault based on an invoice provided by West Valley Construction. CWS estimates the unit cost for the flow meter based on a quote provided by Clipper Controls, Incorporated.

1 *p. San Carlos Station 103 Rebuild (PID 98495)*

2 CWS requests \$1,453,487 in 2016 to demolish the existing White Oaks tank and to  
3 reconstruct the pump station.<sup>48</sup> ORA does not agree with the need for the additional  
4 pumps at Station 103. According to CWS, the current pumping configuration has a

5 \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED] \*\*\*END

6 CONFIDENTIAL\*\*\*<sup>49</sup> ORA reviewed the pumping needs for Station 103. In the Mid-  
7 Peninsula Water Supply and Facilities Master Plan, it states regarding pumping capacity  
8 that the pump station capacity must be efficient to meet \*\*\*BEGIN

9 CONFIDENTIAL\*\*\* [REDACTED] \*\*\*END

10 CONFIDENTIAL\*\*\*<sup>50</sup> The pumping capacity calculation is based on the Table 10-3A  
11 Mid-Peninsula Water Supply and Facilities Master Plan for the pressure zones included  
12 in the calculation and the pressure zone being pumped into.<sup>51</sup> Similar to calculating  
13 storage requirements, CWS's pumping capacity requirements is based on the maximum  
14 recorded ten year maximum day demand ("MDD"). The maximum recorded MDD over  
15 the 2005-2014 period is 8.888 MGD (in 2005).<sup>52</sup> This methodology is not appropriate  
16 due to the current drought condition, which results in a reduction in demand in the system  
17 as shown below. **Figure 2-A** below shows the recorded MDD over the past ten years.

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<sup>48</sup> The scope of the project includes existing the concrete storage tank, grading to backfill tank, construct a new booster station (building, two pumps, panelboard, generator, surge tank, transform, piping), landscaping, fencing, at retrofitting the surrounding pavement.

<sup>49</sup> CWS Project Justification Report, page BAY PJ – 321, Lines 36 to 37.

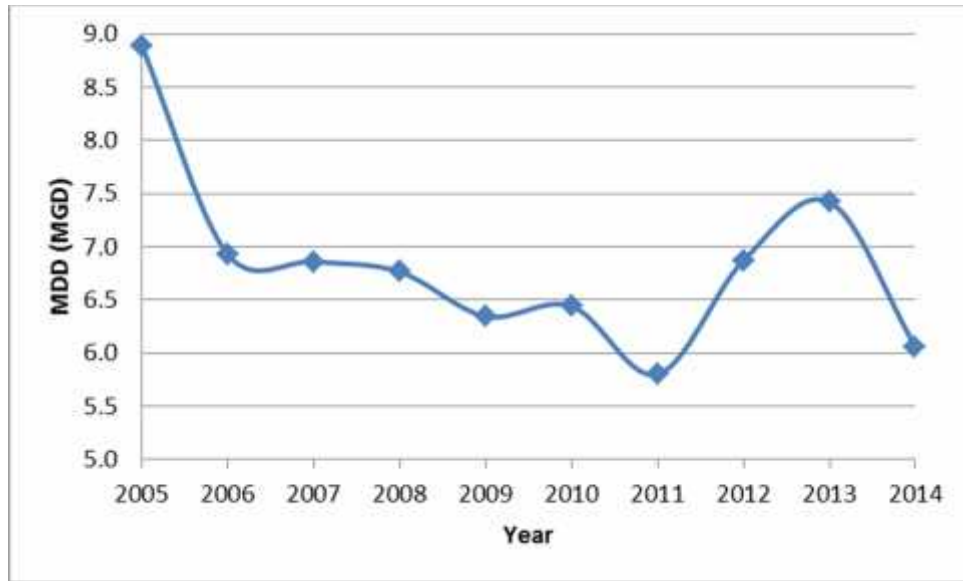
<sup>50</sup> CWS Water Supply & Facilities Master Plan – Mid-Peninsula, page 10-6.

51 \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED]

\*\*\*END CONFIDENTIAL\*\*\*

<sup>52</sup> CWS Response to ORA Data Request JMI-012, Attachment to JMI-012 (1) SM & SC.xlsx, SM- ADD MDD PHD Tab.

Figure 2-A: 2005-2014 Recorded MDD– San Carlos Service Area



It is more appropriate to use demand data from more recent years (2010-2014). Over the past five years, the maximum MDD occurred in 2013 with a MDD of 7.421 MGD.<sup>53</sup> The MDD was allocated throughout the different pressure zones in the system proportionally based on the percentage of pressure zone demand in comparison to the overall demand of the entire San Carlos service area.<sup>54</sup> Based on CWS's methodology, the MDD required would be \*\*\*BEGIN CONFIDENTIAL\*\*\*

\*\*\*END CONFIDENTIAL\*\*\* However, the

MDD required would be \*\*\*BEGIN CONFIDENTIAL\*\*\*

<sup>53</sup> Ibid.

<sup>54</sup> The recorded MDD was distributed among the different zones proportionally based on the percentage of the Master Plan zone base MDD of the total Master Plan total for San Carlos.

\*\*\*BEGIN CONFIDENTIAL\*\*\*

\*\*\*END CONFIDENTIAL\*\*\*

1 [REDACTED] \*\*\*END CONFIDENTIAL\*\*\* using ORA's  
2 recommendation. The difference between the CWS's and ORA's recommendation is a  
3 reduction in pumping demand of 0.49 MGD. Therefore, the net pumping requirement is  
4 a surplus of \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED]  
5 \*\*\*END CONFIDENTIAL\*\*\* difference between CWS's and ORA's recommendation.  
6 Therefore, need for the additional pumps are not necessary and ORA removed the cost of  
7 the pumps.<sup>55</sup> ORA recommends a budget of \$1,366,329 for PID 98495.

8 *q. Well pumps and boosters at Station South San Francisco ("SSF") 1 (PID*  
9 *99293)*

10 CWS requests \$406,964 in 2016 to upsize the existing pump capacity and electrical  
11 upgrades to accommodate the future treatment plant that will be built for the treatment  
12 plant at Station SSF 1. Refer to section regarding the projects related to the SSF Station 1  
13 discussed later on in this chapter regarding ORA's recommendation on PID 99293.

14 *r. Projects related to new operations center (PIDs 98160, 98385, and 99296)*

15 CWS requests three projects in 2016 with a total cost of \$414,405 related to the new  
16 operations center.<sup>56</sup> These projects include the installation of a security window for the  
17 new building (PID 99296), additional outdoor furniture (PID 98385), and a permanent  
18 standby generator at the operations center (PID 98160). According to CWS, the  
19 operations/customer service center advice letter project (PID 63397) and the office

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<sup>55</sup> In addition, in the Project Justification document for the Bayshore district, it states that the existing pumps at Station 103 were replaced fairly recently. Pump 103-C was replaced with a pressure reduced valve, and pumps 103-D and 103-E were replaced in 2008 and 2013, respectively. The proposed project involves relocating pump 103-E.

<sup>56</sup> The proposed project costs for PIDs 98160, 98385, and 99296 are \$196,492, \$21,853, and \$196,060, respectively.



1 furniture associated with the new operations center (PID 63402) are expected to be  
2 completed in 2017, instead of the original year in service of 2016. PIDs 63397 and  
3 63402 are discussed later in this chapter.<sup>57</sup> Since these projects depend on the design of  
4 the new operations building, these projects should be part of PID 63397 and the cost of  
5 projects should be recovered through the advice letter project.

6 In the Project Justifications document, it states that the proposed permanent generator at  
7 the operations center is dependent of the size of the new operation center's electrical  
8 service and motor size.<sup>58</sup> In addition, the location of the proposed generator would  
9 depend on the final design of the operations center. ORA does not agree with the need  
10 for a permanent generator at an operations center since a portable generator would  
11 perform the same function. According to CWS, a permanent standby generator is needed  
12 since there is no secondary source of power at this site.<sup>59</sup> The use of a portable generator  
13 would be feasible since CWS has been operating the operation center without the use of a  
14 permanent generator. In the event the power supplied by Pacific Gas and Electric  
15 Company ("PG&E") is lost, there would not be much of a power outage since there  
16 would not be much of a response time to plug in and start the generator. Therefore, the  
17 need for a permanent generator over a portable generator is not necessary.

18 CWS states that new security counter is for the new building, which will be built to  
19 company standards to include bulletproof glass. Recently built CWS operation centers  
20 such as the operation centers in the Stockton and Marysville districts have security

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<sup>57</sup> CWS Result of Operations Report- Bayshore, page 51.

<sup>58</sup> CWS Project Justification Report, page BAY PJ -318.

<sup>59</sup> Ibid, page BAY PJ -319.

counters of a similar scope. It seems that security counter is a standard for the design of a new CWS operations center, therefore the security counters would be part of the scope of the future operations center in Bayshore and should be part of PID 63397. In addition, the installation of the counters is going to depend on the final design of the operations center.

CWS also requests funding for additional outdoor furniture to accommodate the new operations building and replace the existing outdoor furniture. Since the need for the outdoor furniture is due to accommodate the new operation center, this project should be covered through either PIDs 63397 or 63402. ORA recommends that PID 98160 should not be allowed into rates and PIDs 98385 and 99296 should be included in PIDs 63397 and 63402.

## **2. Non-Specific Budgets for 2016-2018**

CWS requests \$2,379,500, \$2,435,700, and \$2,491,000 in 2016-2018 annual non-specific budgets, respectively to address unforeseen, unplanned, emergency projects. ORA's Report on Plant– Common Issues provides the basis for its recommendation for this budget.

## **3. Carry-Over Budget**

### ***a. Drill, develop, and equip well at Station 1 (PID 61318)***

PID 61318 was originally expected to be placed into service in 2014.<sup>60</sup> According to CWS, the project was on hold due to a potential ammonia contamination and the project

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<sup>60</sup> In the workpaper "WP8B7a", it states that the revised year in service for PID 61318 is 2015.

1 is expected to be completed in 2016.<sup>61</sup> ORA changed the year in service date from 2015  
2 to 2016.<sup>62</sup>

3 *b. 80,000 gallon tank replacement at Station 124 (PID 63556)*

4 PID 63556 was originally expected to be placed into service in 2014.<sup>63</sup> According to  
5 CWS, the project is delayed due to permitting issues. PID 63556 is expected to be placed  
6 into service in 2016.<sup>64</sup> ORA changed the year in service date from 2015 to 2016.<sup>65</sup>

7 *c. Projects related to treatment plant at Station SSF 1 (PIDs 21064, 61596, and*  
8 *61654)*

9 In the last rate case, three projects were adopted to address the water quality issues at the  
10 South San Francisco Station 1. In this rate case, ORA discovered that the combined  
11 revised cost of the three projects exceeds the combined adopted cost of the projects from  
12 the last rate case by approximately 640%. **Table 2-T** below shows the difference in the  
13 revised cost and the adopted cost of the three projects.

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<sup>61</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 73. According to CWS, PID 21064 will address the issue with ammonia contamination.

<sup>62</sup> CWS does not expect any change in the adopted project cost of \$1,189,243.

<sup>63</sup> In the workpaper “WP8B7a”, it states that the revised year in service for PID 63556 is 2015.

<sup>64</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 112. According to CWS, the San Mateo County requires a conditional use and building permit. CWS is also facing legal issues involving easement with the San Mateo County and the previous property owners. The company also faced issues getting authorization from the property owners for permit signatures. In December 2014, it was determined that the County no longer required the property owner’s signature to permit improvements within an easement. In addition, CWS conducted a community outreach meeting to ensure that the public comments and concerns are received and addressed, if feasible prior to submitting for use permitting.

<sup>65</sup> CWS does not expect any change in the adopted project cost of \$427,095.

**Table 2-T: South San Francisco Station 1- Water Treatment Plant<sup>66</sup>**

PID	Description	Adopted Budget	Revised Cost
21064	Conceptual Design	\$ 73,574	\$ 317,852
61596	Iron and Manganese Upgrade	\$479,317	\$ 1,195,000
61654	Chloramination Upgrade	\$ 98,195	\$ 1,195,000
n/a	GAC System	n/a	\$ 1,210,000
	Contingency (22%)	n/a	\$ 885,000
	Total	\$ 651,086	\$ 4,802,852

Originally, PID 21064 was supposed to be completed in 2013 and both PIDs 61596 and 61654 were expected to be completed in 2014.<sup>67</sup> According to CWS, the final design of the treatment plant was expected to be completed by the end of December 2015.<sup>68</sup> The revised cost shown in **Table 2-T** above is tentative and the estimated final cost would not be known until the final design is completed. Due to the expected completion time of the final design of the treatment plant, ORA was not able to review the final cost for reasonableness. CWS's 2015 recorded plant does not include the conceptual design (PID 21064) in the recorded 2015 plant, therefore it is uncertain whether the final design of the projects is complete.

As shown in **Table 2-T** above, CWS revised cost estimate shows that the revised cost includes the installation of a granular activated carbon ("GAC") system. During the district tour on August 5, 2015, CWS informed ORA that the design of the GAC treatment was part of the adopted projects; however, the construction of the GAC is outside the scope of the adopted treatment projects related to Station 1. In addition to the

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<sup>66</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 41.

<sup>67</sup> According to CWS, extensive studies, reports, and submittals were required for CEQA, Planning and Development, and public reviews.

<sup>68</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 41.

1 revised project costs shown in **Table 2-T**, CWS adds an additional 22% contingency.<sup>69</sup>  
2 In the adopted project costs, the reviewed estimates already included funding delegated  
3 for contingency.<sup>70</sup> The project cost contingency is supposed to cover uncertainty or  
4 unforeseeable elements associated with the normal execution of the project. ORA is not  
5 stating that there is not any uncertainty remaining in the project. However, there should  
6 be less contingency in the revised project scope since there is less uncertainty due to  
7 refining the final scope of the project design due to the revisions in the project to fulfill  
8 the requirements to satisfy the approval of outside entities (such as the City of San  
9 Francisco for a building permit, CEQA, Planning and Development, and public review).<sup>71</sup>  
10 Due to the cost overrun with the treatment projects, the additional project included that is  
11 outside the original scope of the adopted projects, and the uncertainty of whether the final  
12 design is complete, the Commission should not approve the revised cost of the adopted  
13 projects given the cost discrepancy between the adopted and revised cost. ORA  
14 recommends that the cost of the projects (PIDs 21064, 61596, and 61654) should not be  
15 included in this rate case. In addition, ORA recommends that PIDs 63997 and 99293  
16 should also not be included in rates at this time since these projects are contingent on the  
17 final design of the treatment plan expansion projects.<sup>72</sup> In the event, CWS completes the

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<sup>69</sup> CWS uses a 22% contingency based on the Waterwork Engineer's standard for treatment projects. Waterworks Engineers is the design consultant for the project.

<sup>70</sup> The adopted project cost estimates included a 10% contingency.

<sup>71</sup> For example, part of the scope of the project was revised to raise the existing station elevation above the Federal Emergency Management Agency ("FEMA") flood plain. By increasing the project contingency from 10% to 22%, CWS is suggesting that there is more uncertainty after refining the scope of the treatment plant projects.

<sup>72</sup> PID 99293 is a proposed project in this rate case to increase the pumping capacity of the pumps due to the expansion of the treatment plant at Station 1. PID 63997 is an adopted project from the last rate case to replace the panelboard at Station 1. Originally, PID 63997 was originally

1 treatment projects and the other projects associated with the expansion of the treatment  
2 plant, CWS may request to recover the final cost of the projects (including the final  
3 recorded costs of PIDs 63997 and 99293 if they are necessary) in the next rate case where  
4 the recorded cost can be reviewed for reasonableness.

#### 5 4. Other Adjustments

##### 6 a. Design and build storage tank at Station 27 (PID 20141)

7 In the 2012 rate case (A.12-07-007), CWS and ORA agreed to treat PID 20141 as an  
8 advice letter with a cost cap of \$2,203,200. The original scope of the project was to build  
9 a 2.5 million gallon (“MG”) tank. During the settlement discussions in A.12-07-007,  
10 CWS proposed to modify the scope of the project to a 4MG tank due to physical  
11 constraints at the original location of the tank.<sup>73</sup> Since ORA was not aware of the change  
12 in scope of the project until late into settlement, ORA could not review the revised scope  
13 of the project for reasonableness or cost-effectiveness. According to CWS, the project is  
14 expected to be completed in 2016.<sup>74</sup> In the settlement, there is a caveat that:

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supposed to be placed into service in 2014; however, the company is currently placing this project on hold due to the expansion of treatment plant at Station 1. If additional pumping capacity is needed for the treatment plant, then a larger sized panelboard at Station 1 may be needed to accommodate the increase in pumping equipment.

<sup>73</sup> The revised cost of the project is \$8,400,000 and is expected to be placed into service in 2016. PID 20141 was originally proposed in the 2009 rate case as a 2.5 MG tank. CWS states that the original cost was based on a rough unit cost per gallon and did not consider the physical site constraints of the site. CWS included this project as part of the requested capital budget in the 2012 rate case. As stated in the adopted settlement from the last GRC (page 168), CWS informed ORA late into the settlement of the 2012 rate case that the mitigation cost for the site constraints was more than expected and CWS believed that the best way to maximize the Station 27 site was to build a larger tank than what was originally planned.

<sup>74</sup> CWS Result of Operations Report- Bayshore, Attachment C, page 11. CWS states that construction is supposed to start in Fall 2015 and last approximately six months.

1 “This agreement is with the understanding that (1) Cal Water will have to fully  
2 justify the expanded scope and budget for this tank project in the next general rate  
3 case, and (2) ORA reserves the right to recommend disallowances if its analysis  
4 shows that the project as built is not the most cost effective option.”<sup>75</sup>

5 According to General Order (“GO”) 103-A, Section II.2.B (3) (b)<sup>76</sup>:

6 “If a system provides potable water for fire protection service, new portions of the  
7 system shall have supply and storage facilities that are designed to meet MDD  
8 plus the required fire flow at the time of design.”

9 ORA reviewed whether the entire 4MG is currently necessary for the system. CWS  
10 provided to ORA the storage requirement calculations for the Bayshore district.<sup>77</sup>  
11 According to CWS’s calculation, it shows that the system has a storage surplus of  
12 3.5MG.<sup>78</sup> CWS’s calculation includes the storage for the entire 4MG associated with PID  
13 20141. CWS calculates that an additional 0.5 MG of storage is needed after excluding the  
14 proposed storage of 4MG from the Zone 270 service area. CWS’s storage need  
15 calculation is based on customer demand from 2006. This calculation is outdated and  
16 should not be relied on because the water demand has been reduced due to water  
17 conservation efforts and the current drought conditions as shown below. **Figure 2-B**  
18 below shows the recorded MDD over the past ten years.

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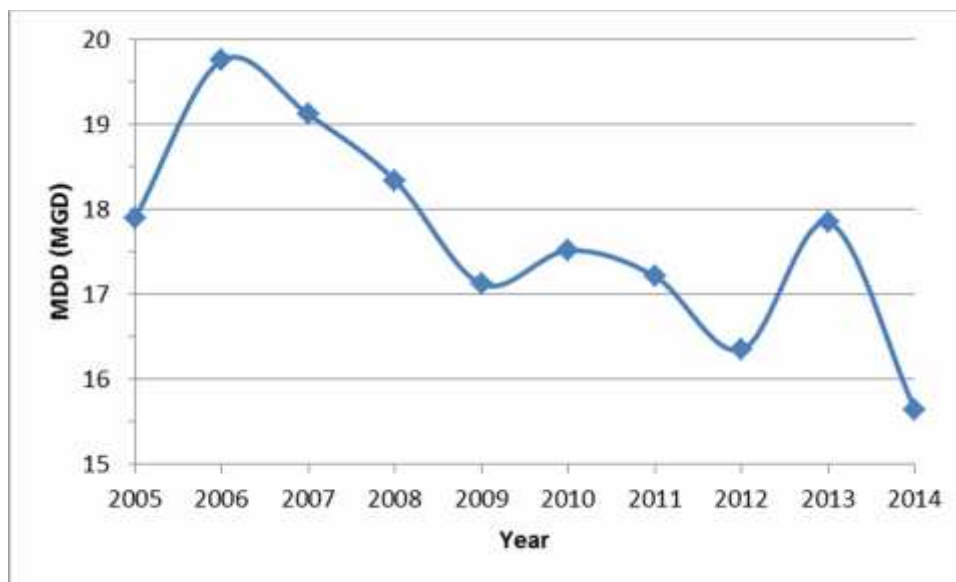
<sup>75</sup> Decision (“D”). 14-08-011, Exhibit A, page 168, Lines 23 to 27.

<sup>76</sup> GO 103-A, p. 11.

<sup>77</sup> CWS Response to ORA Data Request JMI-012, Q. 1.c.

<sup>78</sup> The calculation includes the previously approved advice letter projects PID 20141 (assuming the volume is 4MG) and PID 63772. CWS expects PID 63772 to be in service in 2015.

**Figure 2-B: 2005-2014 Recorded MDD– San Mateo Service Area**



It is more appropriate to use demand data from more recent years (2010-2014). Over the past five years, the maximum MDD occurred in 2013 with a MDD of 17.84 MGD.<sup>79</sup> The MDD was allocated throughout the different pressure zones in the system proportionally based on the percentage of pressure zone demand in comparison to the overall demand of the entire San Mateo service area.<sup>80</sup> The six pressure zones, which will be served by the proposed tank comprise of 85.9% of the San Mateo system demand.<sup>81</sup> After

<sup>79</sup> CWS Response to ORA Data Request JMI-012, Q. 3.c.

<sup>80</sup> According to CWS, the proposed tank would serve the 220, 265, 319-A, 319-B, 319-C, 400, and 470 pressure zones. For example, since pressure zone 220 represents 58.93% of the total district demand the pressure zone 220 would have 58.93% of the total MDD. The seven aforementioned pressure zones represent a combined demand of approximately 69.88% of the total Bear Gulch district demand. ORA estimated the average day demand (“ADD”) by dividing the MDD by a ratio between the MDD and the ADD CWS used to calculate the storage requirements.

<sup>81</sup> CWS Response to ORA Data Request JMI-012, Attachment to JMI-012 (3c).xlsx, SM-Demand by Zone Tab. ORA summed the percentage for the six zones to equal 85.9%.



1 incorporating the 2013 demand data and removing the storage associated with PID  
2 20141, CWS's calculation shows that there is a storage surplus of 0.46 MG. Therefore,  
3 ORA concludes that PID 20141 is not necessary. ORA recommends that ratepayers  
4 should not be responsible for the cost of PID 20141. In the event CWS decides to build  
5 the entire 4MG, then shareholders should be responsible for the entire tank until such  
6 time that the tank can be shown to be prudent, used, and useful in providing service.

7 *b. Operations/Customer service center (PID 63397) and Office Furniture (PID*  
8 *63402)*

9 In the 2012 rate case, CWS requested to replace the existing operations/customer center  
10 due to the existing condition of the building. In addition, CWS also requests furniture to  
11 accommodate the new operations center. During the settlement, CWS and ORA agreed  
12 to treat both projects as advice letter projects.<sup>82</sup> CWS was originally anticipating on the  
13 new operations center to be completed by the end of 2016. However, CWS now  
14 anticipates that the operations center (and the corresponding furniture) will be completed  
15 in 2017.<sup>83</sup> CWS sent a letter to the California Public Utilities Commission Executive  
16 Director requesting to extend the deadline for the two advice letters by one year. In the  
17 letter, CWS and ORA agreed to the extension of the advice letters under certain  
18 conditions.<sup>84</sup> Among the conditions, the advice letters will retain the cost caps as  
19 specified in the settlement adopted in D.14-08-011.<sup>85</sup> In addition, in the event the advice

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<sup>82</sup> D. 14-08-011, Exhibit A, page 170, Lines 5 to 6. The cost cap for PID 63397 and PID 6304 are \$10,200,000 and \$204,000, respectively.

<sup>83</sup> CWS Result of Operations Report- Bayshore, Attachment C, pages 107 and 111.

<sup>84</sup> Letter from Paul Townsley of CWS, to Tim Sullivan of CPUC (December 4, 2015).

<sup>85</sup> Any cost overrun in either of the advice letter projects would be included in CWS's next rate case application.

1 letters are not filed by the end of 2017, then CWS will include these projects in the next  
2 rate case or in a separate application.

3 *c. 2015 recorded plant*

4 CWS requests approximately \$19,196,400 for plant additions, which consists of projects  
5 authorized for 2015 in the last GRC and projects authorized from previous GRCs.  
6 ORA's Report on Plant- Common Issues presents its analysis and recommended 2015  
7 capital additions for Bayshore.

8 **D. CONCLUSION**

9 ORA's recommendations presented above have been incorporated in the calculations for  
10 estimated Plant in Service shown in Table 7-1 in its Company-wide Report, Appendix  
11 RO.

## Chapter 3: Plant – Bear Gulch

### A. INTRODUCTION

This chapter presents ORA’s analyses and recommendations for Plant in Service for CWS’s Bear Gulch District. ORA reviewed and analyzed CWS’s testimony, application, Minimum Data Requirements, workpapers, capital project details, estimating methods and response to various ORA data request. ORA also conducted a field investigation on September 22 and 23, 2015 of some of the proposed specific plant additions before making their own independent estimates including adjustments where appropriate.

### B. SUMMARY OF RECOMMENDATIONS

Based on ORA’s review and analysis of CWS’s requested plant additions, ORA recommends disallowance, adjustment, deferral or Advice Letter treatment where appropriate. These recommendations form the basis of ORA’s recommended capital budget summary presented in **Table 3-A** below. ORA’s estimated plant additions also reflect recommendations in ORA’s Report on Plant – Common Issues regarding pipeline replacement, Supervisory Control and Data Acquisition (“SCADA”) software and hardware replacement, meter replacement, vehicle replacement, control valve replacement and overhaul, non-specific budget, and 2015 recorded plant. **Table 3-B** presents ORA project-specific adjustments.

1

**Table 3-A: Capital Budget Summary – Bear Gulch District**

Bear Gulch (\$000)	2015	2016	2017	2018	Annual Average
<b>ORA</b>	\$ 966.0	\$ 4,341.5	\$ 3,547.0	\$ 5,528.0	\$ 3,595.6
<b>CWS</b>	\$ 8,179.7	\$ 16,079.4	\$ 19,225.1	\$ 28,781.5	\$ 18,066.4
<b>CWS &gt; ORA</b>	\$ 7,213.8	\$ 11,738.0	\$ 15,678.0	\$ 23,253.5	\$ 14,470.8
<b>ORA as % of CWS</b>	12%	27%	18%	19%	19%

2

3

**Table 3-B: Capital Budget Details – Bear Gulch District**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00061892	Olive Hill and Canada Rd. - 8" and 12" DI in (1) Olive Hill from Albion to Canada and (2) Canada from Lanning to Sta 23. 40 ft 12" CLC in Olive Hill under Dry Creek. PRV in Canada from 805 to 640.	\$ -	\$ 2,179,045	\$ 2,179,045	0%
2	00061598	Sand Hill Rd - from Sand Hill Ct. to Portola - 2360' 12" D.I.; 5 Services; 2 Hydrants. Abandon 8" AC in easement from Mountain Home to Sand Hill, 2 hydrants, and 5 services.	\$ -	\$ 1,116,329	\$ 1,116,329	0%
3	00062102	Replace Pump and Motor - Sta. 20-A	\$ -	\$ 57,828	\$ 57,828	0%
4	00076196	Design Phase of new Operations Center	\$ -	\$ 66,478	\$ 66,478	0%
5	00076194	Preliminary Design (including hydrogeologic assessment) for replacement well at Sta. 44.	\$ -	\$ 25,967	\$ 25,967	0%
6	00029009	Paint Interior Underside of Roof + 6' Upper Shell	\$ -	\$ 8,905	\$ 8,905	0%
7	00065371	Ormondale Tank 3 Retrofit - Sta. 29 Tank 3	\$ 151,779	\$ 185,998	\$ 34,220	82%
8	00065389	Tank Retrofit - Sta. 33 Los Trancos	\$ -	\$ 185,998	\$ 185,998	0%
9	00066230	Replace Dedicated Sample Stations	\$ 38,370	\$ 31,915	\$ (6,455)	120%
10	00026009	Los Trancos R&R - 2,500 ft. of 2" PVC; 21 1" Services	\$ -	\$ 278,788	\$ 278,788	0%

4

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
11	00061115	Hillside - 428 Hillside to Glenwood - 1200' 6" DI; 12 2" Services; 2 Hydrants. Abandon 1" and 1.5" stl main, and 2" yellowmine main.	\$ -	\$ 484,645	\$ 484,645	0%
12	00062938	South Castanya - from easement to end of cul-de-sac - 150' 6" PVC; 4 2" Services. Abandon 2" CI main and 4 services.	\$ 72,151	\$ 54,676	\$ (17,475)	132%
13	00063435	Clayton - Alameda to end of cul-de-sac - 730' 8" PVC; 22 2" Services; 3 Hydrants. Abandon 4" CI; 6" AC; 2" CI; 22 services; 1 hydrant.	\$ -	\$ 428,794	\$ 428,794	0%
14	00065390	Skyline-Woodside Mut Connect Design	\$ -	\$ 132,711	\$ 132,711	0%
15	00064507	Vehicle - 0.5 Ton Pick Up with Tool Box and Light Bar	\$ -	\$ 42,000	\$ 42,000	0%
16	00064689	Vehicle - 0.75 Ton Pick Up with Utility Body - Flushing	\$ -	\$ 68,850	\$ 68,850	0%
17	00064690	Vehicle - 0.5 Ton Pick Up with Tool Box and Light Bar	\$ -	\$ 42,000	\$ 42,000	0%
18	BGD0900	Meter Replacement Program	\$ -	\$ 196,868	\$ 196,868	0%
<b>Specifics Total</b>			<b>\$ 262,299</b>	<b>\$ 5,587,794</b>	<b>\$ 5,325,495</b>	<b>5%</b>
<b>Non-Specifics</b>			<b>\$ 411,137</b>	<b>\$ 2,027,250</b>	<b>\$ 1,616,114</b>	<b>20%</b>
<b>Carry-Overs Total</b>			<b>\$ 292,514</b>	<b>\$ 564,658</b>	<b>\$ 272,144</b>	<b>52%</b>
<b>TOTAL 2015</b>			<b>\$ 965,950</b>	<b>\$ 8,179,702</b>	<b>\$ 7,213,752</b>	<b>12%</b>

1

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097443	Bear Gulch CP System Upgrades - 2016 - Sta.19 Tank 1, Sta.19 Tank 2, Sta.21 Tank 2, Sta.29 Tank 3	\$ 74,525	\$ 74,525	\$ -	100%
2	00097559	Install 8"PVC in Whiskey Hill (fronting 450 Whiskey Hill Rd.) and 12" DI in Sand Hill from 515 Whiskey Hill to Manzanita Way	\$ -	\$ 896,362	\$ 896,362	0%
3	00097617	Replace Generator (17.5 HP), install automatic transfer switch, replace pump 038-A and 038-B, flowmeter, Seismically Retrofit 38T1.	\$ 602,286	\$ 697,872	\$ 95,586	86%
4	00097735	Booster pump at station and new dedicated line for 5 services at Vista Verde Way Cul-de-Sac. Seismically retrofit of tank.	\$ 400,011	\$ 400,011	\$ -	100%
5	00097760	Replacement of pump and motor.	\$ -	\$ 67,092	\$ 67,092	0%
6	00097766	Replacement of pump and motor.	\$ 52,607	\$ 52,607	\$ -	100%
7	00097996	Purchase four additional Telog - Pressure Recorders with HPR Kit and carrying case.	\$ 9,127	\$ 9,127	\$ -	100%
8	00098043	Hydrant Meter Reduced Pressure Principal Assembly	\$ 56,792	\$ 56,792	\$ -	100%
9	00098056	Replacement of asphalt berm on the following tanks: Sta. 002-T1&T2; Sta. 005-T8&T9	\$ 14,042	\$ 37,593	\$ 23,551	37%
10	00098060	Replacement of existing wood roof with steel roof.	\$ 424,231	\$ 424,231	\$ -	100%
11	00098114	Replacement of roof hatch (24" x 24") & cupola vent (24" diam.). Retrofit of exterior safety rail.	\$ 26,443	\$ 26,443	\$ -	100%
12	00098344	Install a new 8" Ductile Iron Main to connect Woodside Mutual System Zone 1810 to Skyline System Zone 1610 via Skyline Boulevard.	\$ -	\$ 2,102,960	\$ 2,102,960	0%

1

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
13	00098390	Replace existing leak truck due to age and mechanical problems, Cab & Chassis F-650 along with fabricated body including dump bed, crane, tool boxes, compressor & generator system, emergency lights and radio unit.	\$ 144,230	\$ 144,230	\$ -	100%
14	00098391	Purchase new vaccum & trailer for routine and emergency work and repairs, to assist with main leaks, service leaks, valve casing cleaning out, and meter box cleaning out.	\$ 90,144	\$ 90,144	\$ -	100%
15	00098393	Purchase new Bobcat Street Sweeper and trailer. Unit will be used for repair work to mains and services during routine and emergency working conditions out in the field.	\$ 72,115	\$ 72,115	\$ -	100%
16	00098394	Purchase new OCE Printer for the Bear Gulch Field Office. Printer is required to meet the new requirements of the Cities and Towns for the permitting process of water main projects.	\$ 39,521	\$ 39,521	\$ -	100%
17	00098395	Purchase GPS Equipment for the Bear Gulch District. GPS equipment will assist in the location of Valves and mains throughout our system during street reconstruction projects, new main installations, system repair locations.	\$ 14,062	\$ 14,062	\$ -	100%
18	00098426	Overhaul of Control Valves in the Bear Gulch District - 2016	\$ 41,957	\$ 50,561	\$ 8,604	83%
19	00098428	Video Surveillance cameras at the Bear Gulch Reservoir.	\$ 100,540	\$ 100,540	\$ -	100%
20	00098521	Replacement of 3 control valves in Bear Gulch. Location: 102_000_CV003, 102_000_CV016, 102_000_CV017	\$ 58,533	\$ 87,799	\$ 29,266	67%
21	00098546	Panelboard Replacement at Bear Gulch Station 3	\$ -	\$ 231,091	\$ 231,091	0%
22	00098692	Panelboard Replacement at Bear Gulch Station 16	\$ -	\$ 231,091	\$ 231,091	0%

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
23	00098712	Portable emergency backup generator sized to keep Station 6, 23, 24, and 26 in service in the event of a power outage.	\$ 70,631	\$ 70,631	\$ -	100%
24	00099039	Installation of 10 water quality sample stations.	\$ 82,829	\$ 82,829	\$ -	100%
25	00099116	Vehicle Replacements > 120,000 miles	\$ 121,284	\$ 121,284	\$ -	100%
26	00099268	Replace existing Generator at Sta. 33	\$ 166,555	\$ 166,555	\$ -	100%
27	00099325	Sta 46 Orchard Hills Rebuild	\$ -	\$ 1,993,169	\$ 1,993,169	0%
28	00099331	The 2016 main replacement program will replace 13,664 feet of pipelines in the Bear Gulch district at an estimated cost of \$226 per foot.	\$ 1,557,896	\$ 4,603,800	\$ 3,045,904	34%
29	BGD0900	Meter Replacement Program	\$ 121,101	\$ 237,710	\$ 116,609	51%
<b>Specifics Total</b>			<b>\$ 4,341,463</b>	<b>\$ 13,182,748</b>	<b>\$ 8,841,284</b>	<b>33%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 2,896,700</b>	<b>\$ 2,896,700</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 4,341,463</b>	<b>\$ 16,079,448</b>	<b>\$11,737,984</b>	<b>27%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097750	Consult hydrogeologist and work with Real Estate Agent to purchase property over water bearing soils.	\$ -	\$ 2,633,198	\$ 2,633,198	0%
2	00097302	Sta 42 0.25MG Welded Steel Tank	\$ -	\$ 1,205,305	\$ 1,205,305	0%
3	00097310	Sta 5 3MG Welded Steel Tank	\$ -	\$ 4,628,679	\$ 4,628,679	0%
4	00098015	Sta 27 Pressure Tank Replacement	\$ 171,609	\$ 171,609	\$ -	100%
5	00100197	Installation of 11 water quality sample stations.	\$ 93,390	\$ 93,390	\$ -	100%
6	00097445	Upgrade cathodic protection systems at Bear Gulch Sta.5 Tank 9, Sta.6 Tank 1, Sta.17 Tank 1, Sta.32 Tank 1 & Sta.30 Tank 1	\$ 95,684	\$ 95,684	\$ -	100%

2



2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
7	00097838	Sta 37 Tank Seismic Retrofit	\$ 169,903	\$ 169,903	\$ -	100%
8	00098127	Replacement of cupola vent (24" diam.)	\$ 9,771	\$ 9,771	\$ -	100%
9	00098435	Overhaul of Control Valves in the Bear Gulch District - 2017	\$ 42,947	\$ 53,484	\$ 10,537	80%
10	00097580	Install 1,900 lf of 6" PVC pipe on station property, non paved from Sta 5 to 470 zone.	\$ 327,738	\$ 327,738	\$ -	100%
11	00097769	Replacement of pump and motor.	\$ 53,922	\$ 53,922	\$ -	100%
12	00097770	Replacement of pump and motor.	\$ -	\$ 53,922	\$ 53,922	0%
13	00098522	Replacement of 3 control valves in Bear Gulch. Location: 102_000_CV018, 102_000_CV021, 102_000_CV033	\$ 89,994	\$ 89,994	\$ -	100%
14	00098689	Panelboard Replacement at Bear Gulch Station 14	\$ -	\$ 236,869	\$ 236,869	0%
15	00099291	Replace existing Generator	\$ 170,719	\$ 170,719	\$ -	100%
16	00102024	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ -	\$ 700,611	\$ 700,611	0%
17	00097631	Develop Master Plan for Skyline and Woodside Mutual and investigate well drilling opportunities in Skyline and Watershed	\$ 602,714	\$ 602,714	\$ -	100%
18	00099333	The 2017 main replacement program will replace 13,664 feet of pipelines in the Bear Gulch district at an estimated cost of \$226 per foot.	\$ 1,594,662	\$ 4,718,895	\$ 3,124,233	34%
19	BGD0900	Meter Replacement Program	\$ 123,959	\$ 243,652	\$ 119,693	51%
<b>Specifics Total</b>			<b>\$ 3,547,012</b>	<b>\$ 16,260,058</b>	<b>\$12,713,046</b>	<b>22%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 2,965,000</b>	<b>\$ 2,965,000</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 3,547,012</b>	<b>\$ 19,225,058</b>	<b>\$15,678,046</b>	<b>18%</b>

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00100620	Investigate feasibility of a new station (tank, pumps, genset, scada tower) along high pressure lift from Edmunds to Headquarters.	\$ 113,381	\$ 113,381	\$ -	100%
2	00097519	Rebuild station with 20,000 gallon tank, 2-20 hp booster and panelboard	\$ -	\$ 1,104,908	\$ 1,104,908	0%
3	00097601	Demo building, install pump shelter, reconstruct driveway; tank and panelboard to remain. Sta. 6	\$ 74,419	\$ 74,419	\$ -	100%
4	00097709	Low Head pump at Sta 20 dedicated to supply 440 zone. PRV's to remain as emergency backup for fireflow. 1,200 lf of 6" to connect new pump at Sta 20 to La Cuest and Aliso Way.	\$ 980,374	\$ 980,374	\$ -	100%
5	00097869	Drill new well and install iron and manganese (Fe/Mn) treatment sytem at BG STA 44. Abandon existing BG STA 04-01	\$ -	\$ 1,897,925	\$ 1,897,925	0%
6	00098013	Sta 19 Pressure Tank Replacement	\$ -	\$ 158,985	\$ 158,985	0%
7	00098036	Two new tanks at new BG STA 48 (Skeggs tanks). 1300 LF New DI Main (8") to pump from skyline to new tanks. New booster pump station at Ex. BG STA 41 to add pressure to existing skyline main to pump up to new tanks at BG STA 48	\$ -	\$ 2,928,884	\$ 2,928,884	0%
8	00098220	Replace 1300 ft. of Fencing in Bear Gulch Water Shed	\$ 43,820	\$ 43,820	\$ -	100%
9	00099102	Drill New 16" dia. Casing Well and install Fe and Mn Treament based on hydrogeologist recommendations	\$ -	\$ 3,831,035	\$ 3,831,035	0%

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
10	00100198	Installation of 11 water quality sample stations.	\$ 95,725	\$ 95,725	\$ -	100%
11	00097446	Upgrade cathodic protection system at BG- Sta.2 Tank 2, Sta.5 Tank 8 and Install CP system at the new acquired tanks - BG- Sta.33 Tank 1, Sta.36 Tank 1, Sta.37 Tank 1, Sta.38 Tank 1, Sta.39 Tank 1, Sta. 41 Tank 1.	\$ 156,922	\$ 156,922	\$ -	100%
12	00097775	Sta 36 Tank Seismic Retrofit	\$ 172,642	\$ 172,642	\$ -	100%
13	00098138	Install new interior safety climb rail	\$ 7,196	\$ 7,196	\$ -	100%
14	00098157	Replacement of cupola vent (24" diam.) BG 041-T2	\$ 10,015	\$ 10,015	\$ -	100%
15	00098442	Overhaul of Control Valves in the Bear Gulch District - 2018	\$ 43,927	\$ 54,821	\$ 10,894	80%
16	00097702	Replacement of pump and motor Sta. 33-A.	\$ -	\$ 53,884	\$ 53,884	0%
17	00097773	Replacement of pump and motor.	\$ 55,270	\$ 55,270	\$ -	100%
18	00098524	Replacement of 4 control valves in Bear Gulch. Location: 102_000_CV033, 102_018_CV001, 102_019_CV001, 102_019_CV002	\$ 92,243	\$ 122,991	\$ 30,748	75%
19	00098610	Install flow meters at stations 4,20,33,35,36,38	\$ -	\$ 298,683	\$ 298,683	0%
20	00098682	Panelboard Replacement at Bear Gulch Station 7	\$ -	\$ 242,790	\$ 242,790	0%
21	00099104	Replace the SCADA system server and software. This is a the district portion of a combined project to replace all of the SCADA system software and hardware throughout Cal Water.	\$ -	\$ 734,692	\$ 734,692	0%
22	00099295	Replace existing Generator	\$ 174,987	\$ 174,987	\$ -	100%

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
23	00097628	Install 18" DI raw-water pipeline, branch from Whiskey Hill Road connect to unused AC pipe in Woodside Rd. Connect stub at Moore Rd, traverse through Sta 5 and discharge to reservoir spillway.	\$ 90,014	\$ 90,014	\$ -	100%
24	00097637	Geomorphologist to investigate eddie removal near headwall. Possibly manually adjust flow path.	\$ 190,229	\$ 190,229	\$ -	100%
25	00097713	Replace PRV at Santa Cruz and Sand Hill. Reliability improvement to provide suction pressure from zone 220 and 400 to pump station 20 if SFPUC turnout at Alpine Road is out of service.	\$ 229,919	\$ 229,919	\$ -	100%
26	00097844	Replace Vault of PRV's located at La Mesa Dr, Coquito Wy, Conil Wy, 2 at Garbada Wy, Durazno Way.	\$ 708,719	\$ 708,719	\$ -	100%
27	00097852	PRVs have been rebuilt, but old vaults still exist in Sharon Rd. and Palo Alto Way (2 total) near Santa Cruz Ave.	\$ 255,088	\$ 255,088	\$ -	100%
28	00098018	Slope Stabilization, retaining wall in creek and new easement. Project includes design and permitting.	\$ 275,265	\$ 275,265	\$ -	100%
29	00098236	Resolve low pressure complaints in upper low zone.	\$ -	\$ 2,473,429	\$ 2,473,429	0%
30	00099334	The 2018 main replacement program will replace 13,664 feet of pipelines in the Bear Gulch district at an estimated cost of \$226 per foot.	\$ 1,631,020	\$ 4,836,867	\$ 3,205,847	34%
31	00098471	Purchase and Install AMR system for Skyline and Los Trancos systems	\$ -	\$ 331,755	\$ 331,755	0%
32	BGD0900	Meter Replacement Program	\$ 126,785	\$ 249,743	\$ 122,958	51%

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
33	00099118	Vehicle Replacements > 120,000 miles	\$ -	\$ 49,363	\$ 49,363	0%
<b>Specifics Total</b>			<b>\$ 5,527,960</b>	<b>\$ 23,004,738</b>	<b>\$17,476,778</b>	<b>24%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 3,032,600</b>	<b>\$ 3,032,600</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ 2,744,116</b>	<b>\$ 2,744,116</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 5,527,960</b>	<b>\$ 28,781,454</b>	<b>\$23,253,494</b>	<b>19%</b>

## C. DISCUSSION

The Bear Gulch District recorded \$8,345,186 in annual average gross plant additions for the most recent six-year period 2009-2014.<sup>86</sup> **Table 3-C** compares CWS's and ORA's estimates against recorded annual average gross plant additions.

**Table 3-C: Capital Budget Proposals vs. Recorded Expenditures– Bear Gulch District**

Bear Gulch (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
<b>2009-2014 Recorded</b>	--	--	--	--	\$ 8,345.2	100%
<b>ORA</b>	\$ 966.0	\$ 4,341.5	\$ 3,547.0	\$ 5,528.0	\$ 3,595.6	43%
<b>CWS</b>	\$ 8,179.7	\$ 16,079.4	\$ 19,225.1	\$ 28,781.5	\$ 18,066.4	216%

ORA presents its analyses and recommended adjustments to CWS's requested capital budget for specific projects (Section 1), 2016-2018 Non-Specific budgets (Section 2), carry-overs (Section 3), and other adjustments (Section 4) below.

### 1. Specific Projects

#### *a. Pipeline replacement (PIDs 99331, 99333, and 99334)*

CWS requests approximately \$4,603,800, \$4,718,895, and \$4,836,867 to replace 13,664 feet of pipeline per year between 2016 and 2018, respectively. ORA evaluated the leak

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<sup>86</sup> Gross plant additions include company funded plant additions as well as contributions and advance deposits for specific plant.

rate, water loss, system age, results of American Water Works Association’s (“AWWA”) recommended pipeline replacement model, historical replacement rate, and replacement cost for each district and provided a detailed evaluation of CWS’s pipeline replacement proposal in ORA’s Common Plant Issues Testimony (see ORA’s Report on Plant– Common Issues). **Table 3-D** below shows ORA’s recommendations for pipeline replacement and the associated budgets in this district.<sup>87</sup>

**Table 3-D: Pipeline Replacement Budget– Bear Gulch District**

YEAR	PID	ORA's Recommendation		CWS's Proposal	
		Length (ft)	Budget	Length (ft)	Budget
2016	00099331	6,734	\$ 1,557,896	13,664	\$ 4,603,800
2017	00099333	6,734	\$ 1,594,662	13,664	\$ 4,718,895
2018	00099334	6,734	\$ 1,631,020	13,664	\$ 4,836,867

***b. Pump replacement***

**Table 3-E** shows CWS’s request for pump and motor replacement projects for the Bear Gulch district.

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<sup>87</sup> CWS’s request results in an annual replacement rate of 0.79% in the Bear Gulch district.

1      **Table 3-E: CWS’s Pump and Motor Replacement Request– Bear Gulch District**

Year	PID	Description	Project Cost
2016	97760	Replacement of pump and motor- St. 4-G	\$ 67,092
2016	97766	Replacement of pump and motor- St.24-B	\$ 52,607
2017	97769	Replacement of pump and motor- St. 25-A	\$ 53,922
2017	97770	Replacement of pump and motor- St. 25-B	\$ 53,922
2018	97702	Replacement of pump and motor St. 33-A.	\$ 53,884
2018	97773	Replacement of pump and motor -St. 19-A	\$ 55,270

2

3      ORA believes that pumps and motors should only be replaced when efficiency test and  
4      cost benefit analysis justify the need for replacement. ORA used the CWS rating system  
5      to evaluate need for pump replacement. Refer to ORA’s Report on Plant– Common  
6      Issues regarding a discussion of its methodology for evaluating the pump and motor  
7      replacement projects. CWS provided updated pump test performance test results in  
8      response to data requests JMI-002 and JMI-018.<sup>88</sup> **Table 3-F** shows the list of the pump  
9      efficiency and CWS rating from the most recent pump test.

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<sup>88</sup> CWS Response to ORA Data Request JMI-002, Q. 2.b and JMI-018, Q. 1.b.

**Table 3-F: ORA’s Pump and Motor Replacement Project Recommendations– Bear Gulch District**

PID	Pump	Motor HP	Efficiency	CWS Rating
97760	BG 4-G	60	66.55%	Very Good
97766	BG 24-B	20	36.67%	Very Low
97769	BG 25-A	20	47.10%	Low
97770	BG 25-B	20	46.02%	Low
97702	BG 33-A	40	58.18%	Fair
97773	BG 19-A	15	42.90%	Very Low

ORA believes that the pumps with a CWS rating of “low” (or lower) are reasonable for replacement. Pump test concludes that only some of the pumps are considered reasonable for replacement. In addition, ORA recommends removing the cost for the replacement of pump BG 25-B since the replacement of the pump is already replaced in PID 62104 from the 2012 general rate case.<sup>89</sup> **Table 3-G** shows ORA recommendations for CWS’s proposed pump and motor replacement projects.

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<sup>89</sup> CWS Result of Operations Report- Bear Gulch, Attachment C, page 40. PID 62104 was originally intended to replace the pump at Station 27. According to CWS, the engineer assign to this project repaired the pump at Station 27 and decided to allocate the funding to the project to pump BG 25-B at the end of 2014.



**Table 3-G: ORA's Pump and Motor Replacement Project Recommendations– Bear Gulch District**

Year	PID	Description	Project Cost
2016	97760	Replacement of pump and motor- BG 4-G	\$ 0
2016	97766	Replacement of pump and motor- BG 24-B	\$ 52,607
2017	97769	Replacement of pump and motor- BG 25-A	\$ 53,922
2017	97770	Replacement of pump and motor- BG 25-B	\$ 0
2018	97702	Replacement of pump and motor- BG 33-A.	\$ 0
2018	97773	Replacement of pump and motor- BG 19-A	\$ 55,270

*c. Replace hydro-pneumatic tank at Station 19 (PID 98013)*

CWS requests \$158,985 in 2018 to replace the existing hydro-pneumatic tank at Station 19 due to age and condition. CWS is concerned with the aging hydro-pneumatic tank due to two failure incidents involving some of the hydro-pneumatic tanks in their districts since 2004.<sup>90</sup> CWS identified the hydro-pneumatic tanks in their districts based on age of the hydro-pneumatic tank, pressure variance (difference between operating and certified name plate pressure), risk and injury (to operators or proximity to the public), and number of patches on the tank.<sup>91</sup> ORA evaluated the various criteria CWS used to

<sup>90</sup> CWS Project Justification Report, page BAY PJ – 280, Lines 29 to 32. The failures occurred at pressure tanks Salinas Station 16 and Bakersfield Station 201. According to CWS, the interior surface of the metal corroded to a point where the entire end-cap section of the vessel ruptured and was propelled like a projectile from the remaining vessel with significant force.

<sup>91</sup> The name plate on the hydro-pneumatic tank displays the design specifications of the tank, such as installation date, certified design pressure, design temperature, and initial wall thickness.

1 determine whether a tank needs to be replaced. Refer to ORA's Report on Plant–  
2 Common Issues regarding a discussion of the criteria CWS used to determine whether a  
3 hydro-pneumatic tank should be replaced. ORA does not agree with replacing the hydro-  
4 pneumatic tank at Station 19 in this rate case due to the low pressure variance, wall  
5 thickness exceeding the minimum thickness recommended in the inspection report  
6 prepared by Mistras Group Incorporated, and the number of patches.

7 In the memorandum prepared by CWS regarding the failure of the two hydro-pneumatic  
8 tanks, there were concerns concerning significant metal loss and operational pressure that  
9 was above the certified design pressure on the name plate. In the incident where the  
10 hydro-pneumatic tank at Salinas Station 16 failed, the operational pressure was 80-85  
11 pounds per square inch ("psi"), approximately 60-70% above the certified pressure of 50  
12 psi. The hydro-pneumatic tank at Station 19 had a recorded maximum pressure of 62 psi  
13 in the past twelve months (October 2014 through October 2015), which is less than the  
14 name plate pressure of 125 psi.<sup>92</sup> CWS states that the highest system pressure spikes  
15 would have occurred within the last year due to the state driven water restrictions,  
16 resulting in reduced flow in the system and increasing the period and magnitude of the  
17 static pressure in the distribution system.<sup>93</sup> Unlike the incident that occurred at the  
18 hydro-pneumatic tank at Station 16 of the Salinas district it seems that the hydro-  
19 pneumatic tank at Station 19 of the Bear Gulch district is operating at a safe operational  
20 pressure below the name plate pressure.

21 In addition to the operational pressure, ORA determined whether the hydro-pneumatic  
22 tank had a safe remaining wall thickness. In the incident that occurred at the hydro-

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<sup>92</sup> CWS Response to ORA Data Request JMI-010, Q. 1.f. CWS's response was based on how often the operational pressure exceeded the name plate pressure in the 2010-2014 period.

<sup>93</sup> Ibid.

1 pneumatic tank at Station 201 of the Bakersfield district, the failure report discussed the  
2 wall thickness of the tank.<sup>94</sup> ORA based the minimum safe wall thickness on the wall  
3 thickness information provided in the inspection report prepared by Mistras Group  
4 Incorporated.<sup>95</sup> ORA projects the wall thickness by using the wall thickness provided in  
5 the CWS inspection report and reducing it by the average corrosion rate in the inspection  
6 report prepared by Mistras Group Incorporated through 2018.<sup>96</sup> Since the projected wall  
7 thickness through 2018 exceeds the minimum wall thickness, the hydro-pneumatic tank is  
8 operating with adequate wall thickness.

9 In CWS's weighted average calculation that the company used to determine whether a  
10 hydro-pneumatic tank should be replaced, the total weighted average score gives the  
11 recommendation that the hydro-pneumatic tank should be replaced in a future GRC.<sup>97</sup>  
12 Based on the information provided, it seems that the hydro-pneumatic tank will be  
13 operating at a safe operating pressure with adequate wall thickness through this rate case  
14 period. For the reasons mentioned above, ORA recommends deferring the replacement  
15 of the hydro-pneumatic tank to a future rate case.

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<sup>94</sup> CWS Project Justification Report, page BG PJ—322.

<sup>95</sup> \*\*\*BEGIN CONFIDENTIAL\*\*\*

\*\*\*END CONFIDENTIAL\*\*\*

<sup>96</sup> \*\*\*BEGIN CONFIDENTIAL\*\*\*

\*\*\*END CONFIDENTIAL\*\*\*

<sup>97</sup> CWS Response to ORA Data Request JMI-010, Q. 1.d. The weighted average score calculation provided by CWS, the weighted average score recommends replacement in the next rate case. In the inspection report provided by CWS, there seems to be no recorded patches

*d. Water supply projects (PIDs 102024, 97750, 99102, and 97869)*

CWS requests four projects in this rate case to reduce the district's reliance of purchase water from the San Francisco Public Utilities Commission ("SFPUC"). **Table 3-H** shows CWS's request for water supply projects in this rate case.

**Table 3-H: Water Supply Budgets – Bear Gulch District**

Year	PID	Description	Project Cost
97869	2018	Drill new well and install iron and manganese (Fe/Mn) treatment sytem at BG STA 44. Abandon existing BG STA 04-01	\$ 1,897,925
99102	2018	Develop a new well in the Low Zone of BG	\$ 3,831,035
97750	2017	Consult hydrogeologist and work with Real Estate Agent to purchase property over water bearing soils.	\$ 2,633,198
102024	2017	Perform brackish groundwater aquifer conductivity test at the San Mateo WWTP to determine potential yield from Desalination Plant that will supplement the water supply needs for the San Francisco Peninsula Districts	\$ 700,611
Total (2016-2018)			\$ 9,062,769

CWS's request includes the installation of two wells (PIDs 97869 and 99102), including the purchase of land to install the well (PID 97750 for the land portion in conjunction with PID 99102), and a brackish water aquifer conductivity test at the San Mateo Wastewater Treatment Plant to determine the feasibility to yield brackish water for a

1 possible desalination plant (PID 102024).<sup>98</sup> CWS states that the company would need an  
2 estimated 10.71 million gallons per day (“MGD”) by 2040 in the event the SFPUC  
3 declared a system wide shortage.<sup>99</sup>

4 ORA evaluated whether the additional supply is necessary to meet the current demand of  
5 the system and whether the Bear Gulch system demand consistently exceeds the  
6 Individual Supply Guarantee from SFPUC.<sup>100</sup> During a presentation CWS provided to  
7 ORA during the Bayshore district tour on August 4, 2015, it shows that the total demand  
8 for CWS’s Bayshore and Bear Gulch districts’ combined demand has been consistently  
9 under the Individual Supply Guarantee from the SFPUC of 35.68 MGD.<sup>101</sup> Therefore,  
10 the need for additional supply from the proposed wells or desalination plant is not  
11 necessary at this time. CWS is worried that under drought conditions, the SFPUC would  
12 implement mandatory cutbacks of 10-20% system wide.<sup>102</sup> Despite being one of the

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<sup>98</sup> For PID 97869, CWS request \$1,897,925 in 2018 to install a well and an iron and manganese treatment system for a new source of supply for the Skyline system at Station 44. The scope of PID 97869 includes new piping, panelboard, chemical injection system, and backup generator. For CWS’s proposal for a new well in the Low Zone, the company request \$2,633,198 in 2017 to purchase of land for the proposed well site (PID 97750) and \$3,831,035 in 2018 to install the well including the iron and manganese treatment (PID 99102). For PID 102024, CWS request \$700,611 in 2017 to conduct a brackish water aquifer conductivity test.

<sup>99</sup> CWS Project Justification Report, page BG PJ—736.

<sup>100</sup> The Individual Supply Guarantee is the available SFPUC supply that is entitled to CWS for their suburban customers. The Individual Supply Guarantee is set and limited by contract and is express as an average annual amount.

<sup>101</sup> In CWS Results of Operation Report for the Bear Gulch district, approximately 95 percent of the district’s supply is purchased from SFPUC. During the district tour of the Bear Gulch district on September 22, 2015, CWS informed ORA that the company’s combined (Bear Gulch and Bayshore) SFPUC purchased amount was 33.58MGD and 30.93MGD for 2013 and 2014, respectively.

<sup>102</sup> CWS Project Justification Report, page BG PJ—736.

1 worst droughts in the last 40 years, CWS has submitted no evidence showing any  
2 cutbacks imposed by the SFPUC. Furthermore, in the event of a drought, a reduction of  
3 purchased water demand due to a reduction in customer demand would likely follow.  
4 Under Executive Order B-29-15, Governor Jerry Brown ordered the State Water  
5 Resources Control Board to implement a statewide reduction of 25% in potable urban  
6 water usage (compared to the usage in 2013) through February 28, 2016. On February 2,  
7 2016, the Water Board issued Resolution 2016-0007 extending the drought restrictions  
8 through October 2016.

9 CWS expects the new proposed well for Station 44 (PID 97869) would have a yield of 50  
10 gallons per minute (“gpm”). The installation of a new well would also involve  
11 destroying the existing well BG 44-1. This project is discussed later in this chapter of  
12 this report regarding projects related to Skyline and Woodside Mutual systems.

13 For the proposed well and land purchase for the well site in the Low Zone (PIDs 99102  
14 and 97750), the scope of the project includes iron and manganese treatment. ORA  
15 reviewed the cost effectiveness of the proposed water supply. In a presentation CWS  
16 presented to ORA during the Bear Gulch tour on September 22, 2015, the company  
17 currently purchases SFPUC water for approximately \$3 per hundred cubic feet (“ccf”) or  
18 approximately \$1306.8 per acre-foot (“AF”). CWS quotes the Water Supply & Facilities  
19 Master Plan for the Bear Gulch district in the Project Justifications documents, stating the  
20 cost of groundwater with extensive wellhead treatment is approximately \$1,600 to \$2,100  
21 per AF.<sup>103</sup> The estimated unit cost of \$1,600 to \$2,100 per AF does not include the cost  
22 to acquire property to install the well. Since the cost of the groundwater associated with  
23 PIDs 99102 and 97750 is not cost effective in comparison to purchased water and the

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<sup>103</sup> Ibid, page BG PJ—658, Lines 101 to 103.

1 supplemental supply is not currently needed to supply the district, ORA recommends not  
2 allowing PIDs 99102 and 97750 into rates.

3 The total estimated cost of \$2,802,444 for the brackish water conductivity test is shared  
4 among the Bayshore and Bear Gulch districts.<sup>104</sup> The aquifer test would consist of  
5 installing and operating vertical and horizontal direction drilling (“HDD”) monitoring  
6 and pilot test wells. If the yield tests prove favorable, then a brackish desalination plant  
7 would be considered for development in the future.<sup>105</sup> CWS is intending on pursuing a  
8 partnership with the Bay Area Water Supply and Conservation Agency (“BAWSCA”)  
9 and the City of San Mateo. BAWSCA is currently pursuing grant funding. CWS is  
10 committed to match at least 50% of the project cost, including the future cost for a  
11 desalination plant. In the event BAWSCA is successful in obtaining a grant, then the  
12 actual cost of the feasibility study that would have been fully borne by CWS’s ratepayers  
13 will be reduced by the grant amount.<sup>106</sup> However, if BAWSCA is unsuccessful in  
14 obtaining any grant funding then BAWSCA would not likely proceed with the  
15 conductivity tests.<sup>107</sup> This would mean that CWS ratepayers would be solely responsible  
16 for funding the entire cost of the conductivity tests and the future infrastructure for the

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<sup>104</sup> The total cost of the feasibility test would be divided by the following: 25% of the cost is allocated to the Bear Gulch district and 75% of the cost is allocated to the Bayshore district (50% to Mid-Peninsula (San Carlos and San Mateo) and 25% to South San Francisco).

<sup>105</sup> If the results of the conductivity test prove favorable, CWS intends on refining the cost for a 6.5 MGD brackish water desalination plant.

<sup>106</sup> CWS Project Justification Report, page BG PJ – 735.

<sup>107</sup> Ibid.

1 desalination plant.<sup>108</sup> During the district tour of the Bayshore district, CWS stated that  
2 grant funding has currently not been accepted for the project.<sup>109</sup> ORA disagrees with this  
3 project due to the uncertainty and speculative nature of the total cost of the project, which  
4 ratepayers will be at risk and borne the entire cost. BAWSCA shows that the capital cost  
5 for a 5MGD capacity desalination plant ranges from \$111 million to \$141 million  
6 utilizing subterranean bay HDD well intake (in 2014 dollars).<sup>110</sup> The supplemental  
7 supply ultimately provided by the project is not currently needed to supply the district,  
8 and the high risk that would be borne by ratepayers due to the uncertainty and speculative  
9 nature of this project including a lack of documentation pertaining to California  
10 Environmental Quality Act (“CEQA”) approvals which require significant periods of  
11 time; therefore, ORA recommends not allowing PID 102024 into rates.

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<sup>108</sup> In the Bay Area Water Supply and Conservation Agency Long-Term Reliable Water Supply Strategy Phase II Final Report prepared by CDM Smith, the estimated cost for a 5 MGD plant would cost approximately \$141 million.

<sup>109</sup> In the BAWSCA Strategy Phase II Final Report on the Long Term Reliable Water Supply Strategy identifies the following grant funding opportunities: California Proposition 84, Proposition 1, Water Quality, Supply and Infrastructure Act of 2014, and Water in the 21<sup>st</sup> Century Act. According to BAWSCA, the projects eligible for Prop 84 funding include water supply, wastewater, groundwater management, watershed protection, stormwater, and ecosystem restoration. The California’s Proposition 1, the Water Supply Quality, Supply, and Infrastructure Improvement Act is for statewide projects for increasing water supply, protecting and restoring watersheds, improving water quality, and flood protection. Funds from the Water Bond would become available from state agencies through a competitive grant process, except for water storage projects which would be chosen by the California Water Commission. Water in the 21<sup>st</sup> Century Act (Senate 2771/House of Representatives) would result in an increase in availability for grants and low interest long term loans through the Bureau of Reclamation. BAWSCA intends on applying for the 2015 round of Proposition 84 grant funding.

<sup>110</sup> CWS Project Justification Report, page BG PJ—742. In the Bay Area Water Supply and Conservation Agency Long-Term Reliable Water Supply Strategy Phase II Final Report prepared by CDM Smith, the estimated annual unit cost for a 5 MGD plant (using subterranean bay HDD well intake) would cost approximately \$1,810 to \$2,190 per AF (in 2014 dollars).



*e. Automated metering reading (“AMR”) (PID 98471)*

CWS requests \$331,755 in 2018 to install AMR meters in the Skyline and Los Trancos systems due to remote locations of the systems. In the Bear Gulch district, one full time employee is utilized for meter reading.<sup>111</sup> Even with the implementation of AMR, a full time employee would still be required for meter reading. Therefore, Bear Gulch ratepayers would receive no savings from this investment. For this reason and for additional reasons presented in ORA’s AMR/AMI testimony (see ORA’s Report on Plant – Common Issues), ORA recommends that the Commission not allow this project

*f. Panelboard replacement (PIDs 98692, 98546, 98682, and 98689)*

**Table 3-I** below shows CWS’s request for panelboard replacement projects for the Bear Gulch district due to the age and condition of the existing panelboards.

**Table 3-I: Panelboard Replacement Budgets– Bear Gulch District**

Year	PID	Description	Project Cost
2016	00098692	Panelboard Replacement at Bear Gulch Station 16	\$ 231,091
2016	00098546	Panelboard Replacement at Bear Gulch Station 3	\$ 231,091
2018	00098682	Panelboard Replacement at Bear Gulch Station 7	\$ 242,790
2017	00098689	Panelboard Replacement at Bear Gulch Station 14	\$ 236,869
Total (2016-2018)			\$ 941,840

ORA’s Report on Plant – Common Issues presents ORA’s recommended disallowance of these projects listed in **Table 3-I** above.

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<sup>111</sup> CWS Project Justification Report, page BG PJ-229, Lines 45 to 47.

1 *g. Replace SCADA software and hardware (PID 99104)*

2 CWS requests \$734,692 in 2018 to replace the SCADA hardware and software due to age  
3 (will no longer being supported) and reconfigure the protocol in which data is collected in  
4 the district. CWS is proposing to install automatic pump controls at each station to  
5 connect directly with the SCADA at the district operations center. This project is part of  
6 a larger overall project that is proposed in multiple districts for the SCADA Master Plan.  
7 For reasons identified in ORA's Report on Plant–Common Issues on SCADA, ORA  
8 recommends the Commission disallow this project.

9 *h. Meter replacement program (PID BGD0900)*

10 **Table 3-J** below lists ORA's recommendation on the replacement budget of small and  
11 large meters in the Bear Gulch district. ORA's recommended budgets are based on  
12 detailed analysis and recommendation in ORA's Report on Plant– Common Issues.

13 **Table 3-J: Meter Replacement Budgets – Bear Gulch District**

District:		Bear Gulch	
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	BGD0900	\$ 121,101	\$ 237,710
2017	BGD0900	\$ 123,959	\$ 243,652
2018	BGD0900	\$ 126,785	\$ 249,743

14  
15 *i. Vehicle replacement (PIDs 99116 and 99118)*

16 CWS requests \$121,284 and \$49,363 in 2016 and 2018, to replace vehicles based on  
17 mileage. CWS applies the 120,000 mile criteria to their vehicles regardless of the  
18 vehicle's gross vehicle rate weighting. For the reasons presented in ORA's Report on

1 Plant – Common Issues, ORA recommends removing the cost to replace Vehicle 208111  
2 since it does not meet the Department of General Services (“DGS”) criteria.<sup>112</sup> ORA  
3 recommends \$121,284 and \$0 for PIDs 99116 and 99118, respectively.

4 *j. Replace flow meters and vaults at Stations 4, 20, 33, 35, 36, and 38 (PID 98610)*

5 CWS requests \$298,683 in 2018 to replace six flow meters due to the condition of the  
6 existing flow meters where the mechanical bearings are worn and need to be replaced.  
7 ORA does not agree with the need to replace the flow meter and vaults at Stations 4, 20,  
8 33, 35, 36, and 38. ORA requested from CWS the maintenance records regarding the  
9 flow meters from the past six years (2009-2014). ORA reviewed the maintenance  
10 records for the Bear Gulch district and noticed that there has not been any record of  
11 maintenance for the aforementioned flow meters.<sup>113</sup> Since it seems that there is no  
12 evidence that the flow meters are malfunctioning, it is not necessary to replace the  
13 aforementioned flow meters. Refer to ORA’s Report on Plant– Common Issues  
14 regarding ORA’s methodology for evaluating the flow meter replacement projects. ORA  
15 recommends a project cost of \$0 for PID 98610.

16 *k. Partial Station 38 rebuild (PID 97617)*

17 CWS requests \$697,872 in 2016 to replace the existing pumps, install a permanent  
18 generator, seismically retrofit the tank (including new outlet for the tank to accommodate  
19 the flexible seismic fitting, and replace the existing flow meter (and vault). ORA does

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<sup>112</sup> The DGS Vehicle Replacement Policy sets a replacement schedule criteria based on mileage and vehicle’s gross vehicle weight rating (“GVWR”).

<sup>113</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i. In the maintenance records provided, the only recorded maintenance for the flow meters in the Bear Gulch district involved the replacement of the flow meters at Station 2 and 3, and the investigation of a false alarm at Station 4.

1 not agree with the need to replace the flow meter from this station. In addition, CWS is  
2 already proposing to replace the flow meter and vault at this station as part of the scope to  
3 replace the flow meters and vaults replacement project at Stations 4, 20, 33, 35, 36, and  
4 38 (PID 98610). ORA's recommendation regarding PID 98610 is discussed earlier in  
5 this chapter. After removing the cost of the flow meter and vault, ORA recommends a  
6 budget of \$602,286 for PID 97617.

7 *l. Replacement of asphalt berm for St. 2-Tanks 1 and 2 and St. 5- Tanks 8 and 9*  
8 *(PID 98056)*

9 CWS requests \$37,593 to replace the asphalt berm for this project due to the current  
10 condition. In 2013, CWS completed the replacement of the tank berms at Station 2  
11 Tanks 1 and 2 (PID 19409).<sup>114</sup> In addition, the berm at Station 5, Tank 8 was replaced as  
12 part of the scope of the tank painting project of the interior of the tank (PID 18138).<sup>115</sup>  
13 Since the berm was already replaced at Station 2, Tanks 1 and 2 and Station 5, Tank 8,  
14 ORA removed the cost from the proposed project cost.<sup>116</sup> ORA recommends a budget of  
15 \$14,042 for PID 98056.

16 *m. Replacement of control valves in Bear Gulch (PIDs 98521, 98522, and 98524)*

17 **Table 3-K** below shows CWS's request for its annual 2016-2018 request to replace  
18 control valves.

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<sup>114</sup> CWS Result of Operations Report- Bear Gulch, page 25.

<sup>115</sup> PID 18138 was a project proposed in the 2012 rate case. CWS completed PID 18138 in 2013.

<sup>116</sup> The storage volume of Station 2-Tanks 1 and 2 and Station 5- Tanks 8 and 9 are 0.25 million gallon ("MG"), 0.50MG, 0.25MG, and 1MG, respectively. In the 2015 GRC Tank Projects workpaper, Project by District tab; CWS estimates the cost to replace the berm at Station 5, Tank 9 as \$14,042.

**Table 3-K: Control Valve Replacement Budget– Bear Gulch District**

PID	Year	# of Valves to be Replaced	Project Cost
00098521	2016	3	\$ 87,799
00098522	2017	3	\$ 89,994
00098524	2018	4	\$ 122,991

For the reasons presented in its Report on Plant– Common Issues , ORA recommends replacing two control valves in 2016, three control valves in 2017, and three control valves in 2018, which results in a recommended budget of \$58,532, \$89,994, \$92,243 for PIDs 98521, 98522, and 98524, respectively.

***n. Overhaul control valves in Bear Gulch (PIDs 98426, 98435, and 98442)***

CWS requests \$50,561, \$53,484, and \$54,821 for its annual 2016-2018 request to replace the tubing and internal parts of some of the valves and clean and reuse the body of the valve. For the reasons presented in its Report on Plant– Common Issues, ORA recommends an annual budget of \$41,957, \$42,947, and \$43,927 for 2016-2018, respectively.

***o. Projects related to Woodside Mutual and Skyline systems (PIDs 97631, 97559, 99325, 98344, 97302, 98036, 97519, and 97869)***

**Table 3-L** below shows CWS’s request for proposed projects related to the Woodside Mutual and Skyline systems.

1

**Table 3-L: Projects Related to Skyline and Woodside Mutual System**

<b>PID</b>	<b>Year</b>	<b>Description</b>	<b>Proposed Budget</b>
97631	2017	Skyline& Woodside Mutual Master Plan	\$ 602,714
97559	2016	8" PVC in Whisky Hill	\$ 896,362
99325	2016	St. 46 Orchard Hills Rebuild	\$ 1,993,169
98344	2016	8" Connect Woodside & Skyline	\$ 2,102,960
97302	2017	St. 42 0.25 MG Welded Steel Tank	\$ 1,205,305
98036	2018	New Tanks Skegg BG St. 48 Booster BG 41	\$ 2,928,884
97519	2018	St. 45 Rebuild	\$ 1,104,908
97869	2018	Drill new well and install iron and manganese (Fe/Mn) treatment sytem at BG STA 44. Abandon existing BG STA 04-01	\$ 1,897,925
Total (2016-2018)			\$ 12,732,227

2

3 CWS acquired the Skyline and Woodside Mutual systems in 2009 and 2010, respectively  
4 and proposes to construct over \$12 million of infrastructures to serve customers in these  
5 two systems. The systems were acquired after the completion of the Water Supply and  
6 Facilities Master Plan (“Master Plan”) for the Bear Gulch district.<sup>117</sup> Therefore, CWS  
7 proposes to perform a Master Plan to develop and prioritize future capital improvements  
8 to address the needs for the system. CWS claims that the Master Plan is needed to  
9 analyze the water demand, existing water facilities, determine the water supply  
10 requirements, create a water supply strategy, analyze the water system, and form  
11 recommendations for system improvements based on the analysis performed.<sup>118</sup> The

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<sup>117</sup> CWS Project Justification Report, page BG PJ – 600, Lines 20 to 22.

<sup>118</sup> Ibid, Lines 12 to 15.

1 scope of the Master Plan includes developing a hydraulic model to help analyze the  
2 system's hydraulic behavior and how changes in the system would impact the  
3 performance of the system.<sup>119</sup> One benefit of a hydraulic model would be the ability for  
4 CWS to test the effectiveness of different project improvement designs and to help  
5 determine the optimal solution.<sup>120</sup> In addition to the hydraulic model, part of the scope of  
6 the proposed Master Plan is to evaluate the hydrogeology of the Skyline system to  
7 evaluate the feasibility of developing potential water wells for system supply.<sup>121</sup>

8 In this GRC, CWS is proposing over \$12 million of capital additions without a complete  
9 system evaluation. ORA is concerned with the approach that CWS is taking in managing  
10 projects in a piecewise matter, rather than evaluating the needs system wide. The Master  
11 Plan would allow CWS to evaluate the systems as a whole and CWS states that the  
12 proposed Master Plan will address the supply and reliability goals of the systems and

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<sup>119</sup> Currently, CWS does not have a hydraulic model for either the Skyline or Woodside Mutual systems.

<sup>120</sup> For example, a project was adopted in the last rate case for the design of the main to connect the Skyline and Woodside Mutual systems (PID 65390 for the proposed project PID 98344 in this rate case). According to CWS, the recorded design cost of \$29,548 is under the adopted budget of \$132,711.<sup>120</sup> PID 65390 was recorded under budget and placed into service. CWS states the original scope of the design project included a hydraulic model assessment; however the company did not conduct a hydraulic model assessment since there was no hydraulic model available. At this time, it seems premature to approve PID 98344 in this rate case without verifying the proposed design through the hydraulic model (to see how incorporating the proposed design into the existing system affects the existing system and to see if it creates any unforeseeable issues) or to test alternative designs to determine if the proposed design is the optimal and most cost effective design.

<sup>121</sup> In regards to PID 97869, one concern is that the company does not evaluate alternative sites to see if there are other feasible well sites. The evaluation of the hydrogeology portion of the Skyline system as part of the Master Plan will help explore if there are other well site options available (sites with higher water quality or with larger potential sustained well yield). The yield of the proposed well in PID 97869 is 50 gpm, which is approximately 58 % less than the average well yield recommended by the Water Supply and Facilities Master Plan of 120 gpm. In addition, proposed well in PID 97869 would also require iron and manganese treatment.

1 optimize the water supply and system reliability in a cost effective matter.<sup>122</sup> ORA  
2 understands the need for a Master Plan for the two systems; however, the master plan  
3 should be completed prior to constructing other projects in the Skyline and Woodside  
4 Mutual systems to evaluate the most cost effective approach to address the needs for the  
5 systems and reduce any unnecessary capital spending. ORA does not oppose the  
6 proposed cost of \$602,714 for PID 97631 and recommends deferring the other projects  
7 (PIDs 97559, 99325, 98344, 97302, 98036, 97519, and 97869) to a future rate case in the  
8 event CWS finds the other projects to be prudent after the completion of the Master Plan.

9 *p. Upper Low Zone mitigation (PID 98236)*

10 CWS requests \$2,473,429 in 2018 to resolve low pressure complaints in the Upper Low  
11 zone.<sup>123</sup> The company states during the 2011 to April 2014 period, CWS received  
12 \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED] \*\*\*END CONFIDENTIAL\*\*\* complaints due  
13 to low pressure.<sup>124</sup> However, the company did not perform any pressure study or any  
14 information supporting that the number of complaints is not the result of inside plumbing  
15 at the customer premises. In addition, the company states that certain customers are  
16 experiencing pressure drops due to the installation of backflow prevention devices as  
17 required by the California Code of Regulations, Title 17, Section 7604.<sup>125</sup> The company  
18 however does not specify whether any of the aforementioned complaints are related to

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<sup>122</sup> CWSs Project Justification Report, page BG PJ – 600.

<sup>123</sup> The proposed project consists of new main, pressure reducing valves, check valves, service connections, and intersection tie-ins.

<sup>124</sup> CWSs Project Justification Report, page BG PJ – 831.

<sup>125</sup> California Code of Regulations, Title 17, Section 7604. Section 7604 discusses the minimum protection that should be provided to prevent backflow of customer who are connected to the public water supply that uses either auxiliary water supplies, recycled water, fire protection system, and sewage or hazardous substances.



1 issues concerning the backflow devices, or whether these issues are customer specific,  
2 rather than a system problem. For the reasons mentioned above, ORA recommends that  
3 PID 98236 should not be allowed into rates.

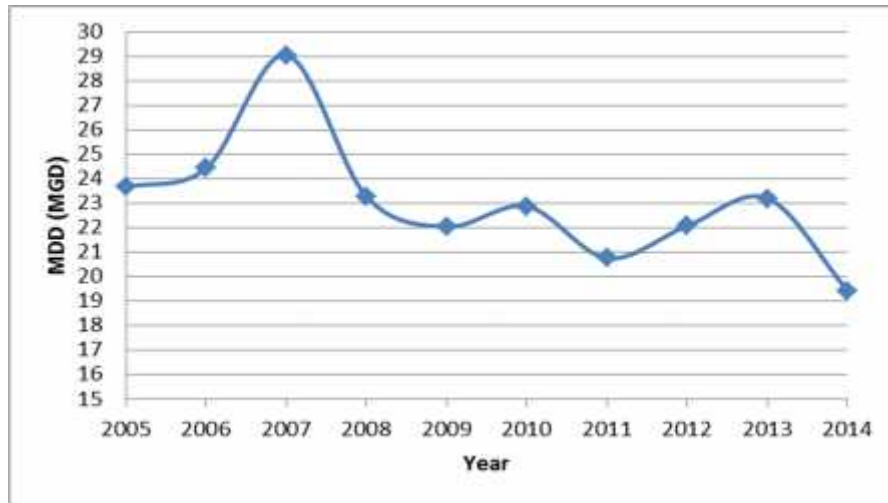
4 *q. Station 5- 3 MG welded steel storage tank (PID 97310)*

5 CWS requests \$4,628,679 in 2017 to construct a new 3 MG welded storage tank at  
6 Station 5 to address the storage deficiency in seven pressure zones (220, 265, 319-A,  
7 319-B, 319-C, 400, and 470).<sup>126</sup> ORA reviewed the storage calculation provided in the  
8 Project Justification document and in response to data request JMI-013, and does not  
9 agree that the proposed storage is necessary for the system. CWS's storage need  
10 calculation is based on customer demand from 2007. This methodology is not  
11 appropriate due to the current drought condition, which results in a reduction in demand  
12 in the system as shown below. **Figure 3-A** below shows the recorded maximum day  
13 demand ("MDD") over the past ten years.

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<sup>126</sup> The scope of the project also includes the removal of the 100,000 gallon redwood tank at Station 5, tank appurtenances, associated underground piping, and site work. CWS Response to ORA Data Request JMI-013, Q. 3.

**Figure 3-A: 2005-2014 Recorded MDD– Bear Gulch District**



It is more appropriate to use demand data from more recent years (2010-2014). Over the past five years, the maximum MDD occurred in 2013 with a MDD of 23.19 MGD.<sup>127</sup> The MDD was allocated throughout the different pressure zones in the system proportionally based on the percentage of pressure zone demand in comparison to the overall demand of the entire district.<sup>128</sup> The seven pressure zones, which will be served by the proposed tank comprise of 70% of the BG system demand.<sup>129</sup> After incorporating the 2013 demand data, the total supply of 33.12 MGD from the seven pressure zones

<sup>127</sup> CWS Response to ORA Data Request JMI-013, Q. 3.

<sup>128</sup> According to CWS, the proposed tank would serve the 220, 265, 319-A, 319-B, 319-C, 400, and 470 pressure zones. For example, since pressure zone 220 represents 58.93% of the total district demand the pressure zone 220 would have 58.93% of the total MDD. The seven aforementioned pressure zones represent a combined demand of approximately 69.88% of the total Bear Gulch district demand. ORA estimated the average day demand (“ADD”) by dividing the MDD by a ratio between the MDD and the ADD CWS used to calculate the storage requirements.

<sup>129</sup> CWS Response to ORA Data Request JMI-013, Attachment to JMI-013 (3).xlsx, BG-Demand by Zone Tab. ORA summed the percentage for the seven zones to equal 70%.

1 exceeds the total peak hour demand (“PHD”) of 24.35 MGD from the seven pressure  
2 zones.<sup>130</sup> Total supply availability has an excess capacity of over 36%, which is more  
3 than sufficient to provide for the PHD.<sup>131</sup>

4 In determining whether there is enough storage in the seven zones, ORA referred to GO  
5 103-A and the Waterworks Standards (CCR Title 22) for storage requirements.

6 GO 103A, II.B.(3)(c) states the following:

7 *“The system’s MDD and PHD shall be determined in accordance with*  
8 *Waterworks Standards, CCR Title 22, Section 64554, or its successor.”*

9 Section 64554 of Title 22 offers the following requirement:

10 *(a) Water sources shall have capacity to meet MDD.*  
11 *(i) For systems with 1,000 or more service connections, the system shall meet*  
12 *4 hours of PHD with source capacity, storage capacity, and/or emergency*  
13 *connections.*

14 As shown above, the existing source capacity alone meets the required 4 hours of PHD  
15 under the requirements set forth in Title 22. However, CWS based its storage need on  
16 AWWA recommended standards to provide for emergency conditions<sup>132</sup>. AWWA  
17 defines the Emergency Storage need as one ADD – to provide a reserve in case of power  
18 outage or main breaks.

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<sup>130</sup> Ibid, ADD MDD PHD Tab. The 2013 PHD in BG is 34.79 MGD. The seven zones PHD =  $0.7 \times 34.79 \text{ MGD} = 24.35 \text{ MGD}$ .

<sup>131</sup> The seven aforementioned pressure zones have a total supply of 33.12MGD. The seven aforementioned pressure zones have a total PHD of 27.63 MGD.

<sup>132</sup> AWWA’s Determining Distribution Storage Needs, September 25, page 8.

1 Currently, the supply capacity of 33.12 MGD exceeds the ADD of 9.25 MGD by  
2 258%.<sup>133</sup> It is neither reasonable nor necessary to construct storage to provide a reserve  
3 for emergency purposes due to the abundance of supply available in the seven zones.  
4 According to CWS, there are approximately eight interconnections in the Bear Gulch  
5 district to the SFPUC.<sup>134</sup> CWS currently has multiple interconnections to meet the PHD.  
6 Since the PHD exceeds the ADD, the current supply would be able to satisfy the  
7 emergency storage requirement. The likelihood of all the available sources of supply  
8 going out at the same time is very minimal. Even in the unlikely event in which 70% of  
9 the supply was unavailable, there would be enough supply to meet to the ADD.<sup>135</sup> Since  
10 the supply of the pressure zones provides enough demand to fulfill the PHD and the  
11 emergency supply requirements, ORA recommends that the proposed storage is not  
12 necessary and PID 97310 should not be included into rates.

13 *r. Tank painting projects (PIDs 98082, 98098, 98108, 98119, 98134, 98141, and*  
14 *98154)*

15 **Table 3-M** below shows CWS's request for tank painting projects in 2016-2018 for the  
16 Bear Gulch district.

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<sup>133</sup> CWS Response to ORA Data Request JMI-013, Attachment to JMI-013 (3).xlsx, ADD MDD PHD Tab. The 2013 ADD in BG is 13.22 MGD. The 7 zones ADD =  $0.7 \times 13.22 \text{ MGD} = 9.35 \text{ MGD}$ .  $(33.12/9.25)-1=258\%$

<sup>134</sup> CWS Result of Operations Report- Bear Gulch, page 15.

<sup>135</sup> In the event 70% of the supply for the pressure zones was unavailable (or only 30% of the 33.12 MGD for the seven pressure zones was available), the reduced supply of approximately 9.94 MGD would be enough to fulfill the estimated ADD of 7.49 MGD based on the ORA adjustments mentioned earlier. The aforementioned reduced supply of 9.94 MGD would even be able to satisfy CWS's ADD estimate of 9.38MGD for the combined seven pressure zones.

**Table 3-M: CWS's Tank Painting Request– Bear Gulch District<sup>136</sup>**

Year	PID	Tank	Interior and/or Exterior	Project Cost
2016	98082	BG 2-T2	Interior Exterior (Partial)	\$ 219,555
2016	98098	BG 27-T4	Exterior	\$ 132,122
2016	98108	BG 41-T1	Interior (Partial)	\$ 90,684
2017	98119	BG 28-T1	Exterior	\$ 48,454
2017	98134	BG 30-T1	Interior	\$ 372,639
2018	98141	BG 37-T1	Exterior (Partial)	\$ 20,000

ORA does not object to need for the tank painting projects. For the tank painting projects PIDs 98098 and 98134, ORA adjusted the estimated cost of the projects based on a lower contingency cost. CWS divides the indirect cost into two categories: (1) Consumables, Waste Management, etc. and (2) Contingency. ORA does not oppose the calculation for the Consumables, Waste Management, etc. line item, but adjusted the contingency line item.<sup>137</sup> CWS uses a 10% contingency of the direct cost subtotal. ORA identified an inconsistency in what is shown in the contingency line item of the cost estimate and the cost estimate methodology for calculating contingency. For example, CWS estimates a direct subtotal of \$262,484 for PID 98134. Using CWS's methodology of 10% of the direct subtotal, the contingency line item should equal \$26,248.40. However, the cost estimate shows \$49,408 in the contingency line item. ORA used a contingency of

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<sup>136</sup> WP 10D2 workpaper.

<sup>137</sup> CWS estimates the Consumables, Waste Management, Etc. line item as 5% of the direct cost subtotal. The direct cost subtotal is the sum of the total contractor cost and the direct internal labor.

1 \$26,248.40, which is consistent with CWS's methodology for calculating contingency for  
2 tank painting projects.<sup>138</sup> The total indirect cost is calculated by adding the Contingency  
3 and Consumables, Waste Management, Etc. line items. The total indirect cost should be  
4 \$39,372.60, (\$26,248.40 Contingency + \$13,124.20 Consumables, Waste Management,  
5 Etc., or 10% of direct cost subtotal + 5% of direct cost subtotal) instead of the \$62,532  
6 total indirect cost CWS estimates (\$49,408 Contingency + \$13,124.20 Consumables,  
7 Waste Management, Etc.).<sup>139</sup> **Table 3-N** shows ORA's recommended project cost  
8 estimate incorporating the aforementioned adjustments for the proposed tank painting  
9 projects.

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<sup>138</sup> Similarly for PID 98098, CWS estimates a direct subtotal of \$94,953. Using CWS's methodology of 10% of the direct subtotal, the contingency line item should equal \$9,495.30. However, the cost estimate shows \$17,442 in the contingency line item. ORA used a contingency of \$9,495.30, which is consistent with CWS's methodology for calculating contingency for tank painting projects.

<sup>139</sup> Similarly for PID 98098, the total indirect should be \$14,243 (\$9,495.30 Contingency + \$4,747.65 Consumables, Waste Management, Etc.) instead of the \$22,190 (\$17,442 Contingency + \$4,747.65 Consumables, Waste Management, Etc.) total indirect cost CWS estimates.

**Table 3-N: ORA Recommended Tank Painting Cost Estimate– Bear Gulch District<sup>140</sup>**

Year	PID	Tank	Interior and/or Exterior	Project Cost
2016	98082	BG 2-T2	Interior Exterior (Partial)	\$ 219,555
2016	98098	BG 27-T4	Exterior	\$ 114,656
2016	98108	BG 41-T1	Interior (Partial)	\$ 90,684
2017	98119	BG 28-T1	Exterior	\$ 48,454
2017	98134	BG 30-T1	Interior	\$ 324,496
2018	98141	BG 37-T1	Exterior (Partial)	\$ 20,000

## 2. Non-Specific Budgets for 2016-2018

CWS request \$2,896,700, \$2,965,000, and \$3,032,600 in 2016-2018, respectively to address unforeseen, unplanned, emergency projects, and regulatory compliant projects. ORA's Report on Plant– Common Issues provides the basis for ORA's recommended total disallowance of this budget.

## 3. Carry-Over Budget

### *a. Construct 250,000 gallon tank at Skyline System (PID 19633)*

The scope of the project was to originally install a 250,000 gallon welded steel tank to be located in the Wunderlich Park area along Skyline Boulevard. CWS was unable to obtain

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<sup>140</sup> In addition to an adjustment to the contingency line item, there was an adjustment to the escalation line item. The escalation line item is calculated based on a percentage of the subtotal cost (direct and indirect costs).

1 an easement to the site and decided on finding an alternative location for the tank.<sup>141</sup>  
2 CWS is proposing to cancel this project and replace it with the proposed project in this  
3 rate case at the Skeggs tank site (PID 98036). According to CWS, the company is  
4 currently completing the preliminary design activities and easement discussion with the  
5 current owner of the Skeggs tank location (Mid-Peninsula Open Space) and recording the  
6 cost under PID 19633. CWS is planning on transferring the recorded budget and labor  
7 charges for PID 19633 to the proposed PID 98036. PID 19633 will be cancelled once the  
8 transfer of the recorded cost is finalized.<sup>142</sup> The proposed tanks that are part of the scope  
9 of PID 98036 will be part of the Skyline system. ORA recommends that the proposed  
10 Master Plan for the Skyline and Woodside Mutual systems (PID 97631) be completed  
11 prior to constructing other projects in the Skyline and Woodside Mutual systems  
12 (including PID 98036) to evaluate the most cost effective approach to address the needs  
13 for the systems. ORA's recommendation regarding PID 98036 is discussed earlier in this  
14 chapter.

#### 15 4. Other Adjustments

##### 16 a. 2015 recorded plant

17 CWS requests approximately \$11,525,566 for plant additions in 2015, which consists of  
18 projects authorized for 2015 in the last GRC and projects authorized from previous

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<sup>141</sup> CWS Result of Operations Report- Bear Gulch, Attachment C, page 14. CWS decided that the Skeggs tank location would function comparably to the Wunderlich location.

<sup>142</sup> Ibid. In the CWS Result of Operation Report for the Bear Gulch district, the recorded cost of PID 19633 is \$72,659.



1 GRCs.<sup>143</sup> ORA's Report on Plant–Common Issues presents its analysis and basis for  
2 adjusting the 2015 capital additions for Bear Gulch.

3 **D. CONCLUSION**

4 ORA's recommendations presented above have been incorporated in the calculations for  
5 estimated Plant in Service as shown in Table 7-1 in its Company-wide Report, Appendix  
6 RO.

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<sup>143</sup> Bear Gulch Discovery 2015 workpaper, WP8B2 tab.

## Chapter 4: Plant – Chico

### A. INTRODUCTION

This chapter presents ORA’s analyses and recommendations for Plant in Service for CWS’s Chico District. ORA reviewed and analyzed CWS’s testimony, application, Minimum Data Requirements, work papers, capital project details, estimating methods, and response to various ORA data request. ORA also conducted a field investigation on September 29, 2015 of some of the proposed specific plant additions before making its own independent estimates including adjustments where appropriate.

### B. SUMMARY OF RECOMMENDATIONS

Based on ORA’s review and analysis of CWS’s requested plant additions, ORA recommends disallowance, adjustment, deferral or Advice Letter treatment where appropriate. These recommendations form the basis of ORA’s recommended capital budget summary presented in **Table 4-A** below. ORA’s estimated plant additions also reflect recommendations in ORA’s Report on Plant– Common Issues regarding pipeline replacement, pump and motor replacement, vehicle replacement, Supervisory Control and Data Acquisition (“SCADA”) software and hardware replacement, non-specific budget, and 2015 recorded budget. **Table 4-B** presents ORA project-specific adjustments.

**Table 4-A: Capital Budget Summary – Chico District**

Chico (\$000)	2015	2016	2017	2018	Annual Average
ORA	\$ 2,606.6	\$ 3,419.6	\$3,394.0	\$2,989.6	\$3,102.5
CWS	\$ 9,709.1	\$ 7,746.6	\$7,545.5	\$8,708.0	\$8,427.3
CWS > ORA	\$ 7,102.6	\$ 4,327.0	\$4,151.5	\$5,718.4	\$5,324.9
ORA as % of CWS	27%	44%	45%	34%	38%

**Table 4-B: Capital Budget Details – Chico District**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00015867	Blowoff / Air Gap - Sta. 63-01	\$ 133,326	\$ 161,738	\$ 28,412	82%
2	00020025	Field - 550 Gal Vac Trailer w/ Compressor	\$ -	\$ 82,497	\$ 82,497	0%
3	00060852	Ivy St. between 9th St. and 10th St. - 300' 8" PVC; 9 1" Services	\$ 86,926	\$ 88,292	\$ 1,365	98%
4	00060853	19th St. between Park Ave and Normal Ave. - 1450' 6" PVC; 19 1" Services; 2 Hydrants	\$ 403,500	\$ 395,490	\$ (8,010)	102%
5	00061338	Aldos CL2 Pumps	\$ 11,318	\$ 11,317	\$ (1)	100%
6	00062173	Replace Pump, Motor, and Column - Sta. 20-01	\$ -	\$ 83,057	\$ 83,057	0%
7	00063578	New Generator - Sta. 55	\$ -	\$ 145,637	\$ 145,637	0%
8	00063672	New Generator - Sta. 71	\$ -	\$ 218,607	\$ 218,607	0%
9	00063830	Replace Panelboard - Sta. 20	\$ -	\$ 163,000	\$ 163,000	0%
10	00063844	Replace Panelboard - Sta. 25	\$ -	\$ 161,306	\$ 161,306	0%
11	00064710	1400 Flat Rate Services to Metered	\$ 180,412	\$ 452,284	\$ 271,873	40%
12	00065430	2 Hydrants - City of Chico Franchise Agreement	\$ -	\$ 20,372	\$ 20,372	0%
13	00065433	1 Hydrant - per agreement with the city	\$ -	\$ 11,753	\$ 11,753	0%
14	CHD0900	Meter Replacement Program	\$ -	\$ 427,388	\$ 427,388	0%
<b>Specifics Total</b>			<b>\$ 815,482</b>	<b>\$ 2,422,737</b>	<b>\$ 1,607,255</b>	<b>34%</b>
<b>Non-Specifics</b>			<b>\$ 660,754</b>	<b>\$ 1,423,700</b>	<b>\$ 762,946</b>	<b>46%</b>
<b>Carry-Overs Total</b>			<b>\$ 1,130,327</b>	<b>\$ 5,862,696</b>	<b>\$ 4,732,369</b>	<b>19%</b>
<b>TOTAL 2015</b>			<b>\$ 2,606,562</b>	<b>\$ 9,709,132</b>	<b>\$ 7,102,570</b>	<b>27%</b>

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097298	Install well blow off and storm drain pipe at Sta. 51.	\$ 99,564	\$ 99,564	\$ -	100%
2	00097444	Remove building and go with outside pump shelter, replace station piping, replace all electrical, remove air stripper, and replace pump. Booster pump may need removal only.	\$ 545,050	\$ 590,370	\$ 45,320	92%
3	00097585	ROUTINE REPLACEMENTS OF 6 ALLDOS CL2 PUMPS AT VARIOUS STATIONS	\$ 19,776	\$ 19,776	\$ -	100%
4	00097589	GAC CARBON CHANGE OUT @ 2 STATIONS	\$ 142,753	\$ 142,753	\$ -	100%
5	00097593	REPLACE MISC WQ TESTING EQUIP- PH & CL2 METERS	\$ 7,901	\$ 7,901	\$ -	100%
6	00097596	REPLACE 5 SAMPLE SITES @ VARIOUS LOCATIONS	\$ 18,635	\$ 18,635	\$ -	100%
7	00097626	Remove old building, install outside pump shelter, replace all electrical including panel board, tie in to storm drain system, new well blow off and piping, and driveway.	\$ 517,746	\$ 585,429	\$ 67,683	88%
8	00097718	INSTALL NEW CONSERVATION GARDEN AT CH STA 34	\$ -	\$ 69,121	\$ 69,121	0%

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2

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
9	00097736	INSTALL 4 CL2 ANALYZERS ON SCADA, VARIOUS LOCATIONS	\$ 89,450	\$ 89,450	\$ -	100%
10	00097842	REPLACE 9 CSR CHAIRS IN THE CHICO CUSTOMER SERVICE CENTER	\$ 9,579	\$ 9,579	\$ -	100%
11	00097863	REPLACE EXISTING LOCATING EQUIPMENT	\$ 9,615	\$ 9,615	\$ -	100%
12	00097895	Install 2 new hydrants per agreement with city of Chico.	\$ 29,559	\$ 29,559	\$ -	100%
13	00097961	Replacement of pump and 60 Hp motor. CH 018-01	\$ -	\$ 63,950	\$ 63,950	0%
14	00097967	Replacement of pump and 75 Hp motor. CH 062-01	\$ -	\$ 84,086	\$ 84,086	0%
15	00097973	Replacement of pump and 60Hp motor. CH 019-01	\$ -	\$ 61,939	\$ 61,939	0%
16	00097980	Purchase land for new well site at Mountain Vista/Sycamore Glen subdivision on the outskirts of the City of Chico.	\$ -	\$ 315,018	\$ 315,018	0%
17	00098014	Replace panelboard at CH 24	\$ -	\$ 235,581	\$ 235,581	0%
18	00098024	Need to replace portable generator	\$ 1,442	\$ 1,442	\$ -	100%
19	00098049	Hydrant Meter Reduced Pressure Principal Assembly	\$ 44,745	\$ 44,745	\$ -	100%
20	00098729	Install SCADA on 4 PRVs (CLA-vals) Two are located at Station 66 in Zone 325	\$ 154,038	\$ 154,038	\$ -	100%

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
21	00098734	Replace Flow meter at 3 stations in 2016	\$ 150,774	\$ 150,774	\$ -	100%
22	00099051	Replacement of pump and 75 Hp motor. CH 047-01	\$ -	\$ 84,086	\$ 84,086	0%
23	00099119	Vehicle Replacements > 120,000 miles	\$ 374,779	\$ 374,779	\$ -	100%
24	00099408	Replace V204047 due to high repair costs	\$ 125,655	\$ 125,655	\$ -	100%
25	00099197	The 2016 main replacement program will replace 10,408 feet of pipelines in the Chico district at an estimated cost of \$176 per foot.	\$ 986,983	\$ 2,730,927	\$ 1,743,944	36%
26	CHD0900	Meter Replacement Program	\$ 91,587	\$ 189,913	\$ 98,326	48%
<b>Specifics Total</b>			<b>\$ 3,419,632</b>	<b>\$ 6,288,685</b>	<b>\$ 2,869,053</b>	<b>54%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,457,900</b>	<b>\$ 1,457,900</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 3,419,632</b>	<b>\$ 7,746,585</b>	<b>\$ 4,326,953</b>	<b>44%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00019368	Replace Carpet & Linoleum - Customer/Operations Center	\$ 18,796	\$ 18,796	\$ -	100%
2	00097587	ROUTINE REPLACEMENT OF 6 ALLDOS CL2 PUMPS AT VARIOUS LOCATIONS	\$ 20,270	\$ 20,270	\$ -	100%
3	00097590	GAC CARBON CHANGE OUT @ 2 STATIONS	\$ 146,322	\$ 146,322	\$ -	100%
4	00097594	REPLACE MISC WQ TESTING EQUIP INCLUDING PH & CL2 METERS	\$ 8,405	\$ 8,405	\$ -	100%
5	00097597	REPLACE 5 SAMPLE SITES @ VARIOUS LOCATIONS	\$ 15,399	\$ 15,399	\$ -	100%
6	00097633	Installation of storm drain pipe, well blow off structure and catch basin at Sta. 31. Some concrete work is also needed	\$ 54,283	\$ 54,283	\$ -	100%
7	00097638	Station 11 Building removal, installing outside pump shelter, all electrical replacement, new CL shed, storm drain piping and new blow off, station piping replacement with new configuration, new fence and removal/abandonment of old drainage system and concrete sump	\$ 514,795	\$ 578,613	\$ 63,818	89%

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
8	00097672	Building removal and replacement, station pipe replacement, blow off and storm drain piping installation Sta. 44	\$ 534,744	\$ 580,090	\$ 45,346	92%
9	00097772	The station 14 building, associated equipment (including all electrical), station piping are to be removed. A new outdoor pump shelter and outdoor panel board will be installed	\$ 398,891	\$ 445,345	\$ 46,454	90%
10	00097846	Replace 8 CSR chairs in the Chico Customer Service Center	\$ 8,501	\$ 8,501	\$ -	100%
11	00097885	Replacement of pump and 50Hp motor. CH 011-01	\$ -	\$ 63,485	\$ 63,485	0%
12	00097962	Replacement of pump and 75Hp motor. CH 059-01	\$ -	\$ 86,188	\$ 86,188	0%
13	00097965	Replacement of pump and 75 Hp motor CH 056-01	\$ -	\$ 86,188	\$ 86,188	0%
14	00097968	Replacement of pump and 75 Hp motor. CH 034-01	\$ 86,188	\$ 86,188	\$ -	100%
15	00098016	Panelboard Replacement at CH Sta. 026	\$ -	\$ 241,471	\$ 241,471	0%
16	00098033	Need 2 new sump pumps to replace old/aging sump pumps.	\$ 2,464	\$ 2,464	\$ -	100%
17	00098044	Install 150 KW generator	\$ 201,404	\$ 201,404	\$ -	100%
18	00098184	Install 2 hydrants per agreement with City of Chico	\$ 30,298	\$ 30,298	\$ -	100%



2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
19	00098400	Replacement of pump and 100 Hp motor. CH 041-01	\$ 103,641	\$ 103,641	\$ -	100%
20	00098735	Install new or Replace Flow meters at 3 stations in 2017	\$ 103,029	\$ 154,543	\$ 51,514	67%
21	00099121	Vehicle Replacements > 120,000 miles	\$ 42,559	\$ 127,676	\$ 85,117	33%
22	00099198	The 2017 main replacement program will replace 10,408 feet of pipelines in the Chico district at an estimated cost of \$176 per foot.	\$ 1,010,276	\$ 2,799,200	\$ 1,788,924	36%
23	CHD0900	Meter Replacement Program	\$ 93,748	\$ 194,660	\$ 100,912	48%
<b>Specifics Total</b>			<b>\$ 3,394,011</b>	<b>\$ 6,053,428</b>	<b>\$ 2,659,417</b>	<b>56%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,492,100</b>	<b>\$ 1,492,100</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 3,394,011</b>	<b>\$ 7,545,528</b>	<b>\$ 4,151,517</b>	<b>45%</b>

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097454	Upgrade cathodic protection system at CH- Sta.3 Tank 4, Sta.66 Tank 1	\$ 19,615	\$ 39,230	\$ 19,615	50%
2	00097588	ROUTINE REPLACEMENT OF 6 ALLDOS CL2 PUMPS AT VARIOUS LOCATIONS	\$ 20,777	\$ 20,777	\$ -	100%
3	00097591	GAC CARBON CHANGE OUT @ 2 STATIONS	\$ 149,980	\$ 149,980	\$ -	100%
4	00097595	REPLACE MISC WQ TESTING EQUIP INCLUDING PH & CL2 METERS	\$ 8,928	\$ 8,928	\$ -	100%
5	00097598	REPLACE 5 SAMPLE SITES @ VARIOUS LOCATIONS	\$ 19,579	\$ 19,579	\$ -	100%
6	00097646	Installing Blow Off and storm drain pipe - Sta. 35	\$ 87,475	\$ 87,475	\$ -	100%
7	00097651	Well structure will be modified/repared to reduce pumping nitrate levels at Sta. 63-01	\$ 231,747	\$ 231,747	\$ -	100%
8	00097767	Station 12 building, underground piping, all electrical (including panel board), are to be removed. Then we will install outside shelter and outdoor panel board and other station associated structures.	\$ 384,881	\$ 552,451	\$ 167,570	70%

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
9	00097878	Replace Customer Center copier	\$ 25,255	\$ 25,255	\$ -	100%
10	00097966	Replacement of pump and 75 Hp motor. CH 027-01	\$ -	\$ 88,342	\$ 88,342	0%
11	00097969	Replacement of pump and 75 Hp motor. CH 023-01	\$ -	\$ 88,342	\$ 88,342	0%
12	00097970	Replacement of pump and 75 Hp motor. CH 048-01	\$ -	\$ 88,342	\$ 88,342	0%
13	00097981	Replacement of pump and 75 Hp motor. CH 029-01	\$ -	\$ 88,342	\$ 88,342	0%
14	00098032	Replace electrical panelboard at CH 35	\$ -	\$ 234,222	\$ 234,222	0%
15	00098037	Study the Feasibility to bring a Surface Water Supply to the Chico service area	\$ -	\$ 387,879	\$ 387,879	0%
16	00098041	Install 150 kW generator	\$ 206,439	\$ 206,439	\$ -	100%
17	00098187	Install 2 new hydrants per agreement with City of Chico	\$ 31,055	\$ 31,055	\$ -	100%
18	00098189	New vac machine needed to replace old/aging vac machine in Chico	\$ 109,041	\$ 109,041	\$ -	100%
19	00098398	Replacement of pump and 75 Hp motor. CH 063-01	\$ 88,342	\$ 88,342	\$ -	100%
20	00098714	Install a Well Transducer at for 20 Wells. Most stations have one well.	\$ -	\$ 257,448	\$ 257,448	0%
21	00098722	Install RTUs at 10 Stations in the Chico District. Locations TBD.	\$ 305,326	\$ 305,326	\$ -	100%
22	00098740	Replace Flow meter at 3 stations in 2018	\$ 78,990	\$ 78,990	\$ -	100%

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
23	00099106	Replace the SCADA system server and software. This is a the district portion of a combined project to replace all of the SCADA system software and hardware throughout Cal Water.	\$ -	\$ 783,189	\$ 783,189	0%
24	00099122	Vehicle Replacements > 120,000 miles	\$ 92,985	\$ 142,348	\$ 49,363	65%
25	00099200	The 2018 main replacement program will replace 10,408 feet of pipelines in the Chico district at an estimated cost of \$176 per foot.	\$ 1,033,310	\$ 2,869,180	\$ 1,835,870	36%
26	CHD0900	Meter Replacement Program	\$ 95,886	\$ 199,527	\$ 103,641	48%
<b>Specifics Total</b>			<b>\$ 2,989,612</b>	<b>\$ 7,181,777</b>	<b>\$ 4,192,166</b>	<b>42%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,526,200</b>	<b>\$ 1,526,200</b>	
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 2,989,612</b>	<b>\$ 8,707,977</b>	<b>\$ 5,718,366</b>	<b>34%</b>

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## C. DISCUSSION

The Chico District recorded \$5,042,939 per year in average gross plant additions for the most recent six-year period (2009-2014).<sup>144</sup> **Table 4-C** compares CWS's and ORA's estimates against recorded annual average gross plant additions.

**Table 4-C: Capital Budget Summary vs. Recorded Expenditures– Chico District**

Chico (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
<b>2009-2014 Recorded</b>	--	--	--	--	\$5,042.9	100%
<b>ORA</b>	\$ 2,606.6	\$ 3,419.6	\$3,394.0	\$2,989.6	\$3,102.5	62%
<b>CWS</b>	\$ 9,709.1	\$ 7,746.6	\$7,545.5	\$8,708.0	\$8,427.3	167%

ORA presents a discussion on its analyses and recommended adjustments to CWS's requested capital budget for specific projects (Section 1), 2016-2018 non-specific projects (Section 2), and 2015 Budget (Section 3) below.

### 1. **Specific Projects**

#### *a. Pipeline replacement (PIDs 99197, 99198, and 99200)*

CWS requests approximately \$2,730,927, \$2,799,200, and \$2,836,867 to replace 10,408 feet of pipeline per year between 2016 and 2018, respectively. ORA evaluated the leak rate, water loss, system age, results of American Water Works Association's ("AWWA") recommended pipeline replacement model, historical replacement rate, and replacement cost for each district and provided a detailed evaluation of CWS's pipeline replacement proposal in ORA's Report on Plant– Common Issues Testimony (see ORA's Report on

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<sup>144</sup> Gross plant additions include company funded plant additions as well as contributions and advance deposits for specific plant.

1 Plant – Common Issues). **Table 4-D** below shows ORA’s recommendations for pipeline  
2 replacement and associated budgets in the Chico district.<sup>145</sup>

3 **Table 4-D: Pipeline Replacement Request– Chico District**

YEAR	PID	ORA's Recommendation		CWS's Proposal	
		Length (ft)	Budget	Length (ft)	Budget
2016	00099197	5,662	\$ 986,983	10,408	\$ 2,730,927
2017	00099198	5,662	\$ 1,010,276	10,408	\$ 2,799,200
4 2018	00099200	5,662	\$ 1,033,310	10,408	\$ 2,869,180

5 ***b. Pump replacement***

6 **Table 4-E** below shows CWS’s request for pump and motor replacement projects for the  
7 Chico district.

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<sup>145</sup> CWS’s request results in an annual replacement rate of 0.52% in the Chico district.

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**Table 4-E: CWS's Pump and Motor Replacement Request– Chico District**

Year	PID	Description	Cost
2016	00097961	Replacement of pump and 60 Hp motor. CH 018-01	\$ 63,950
2016	00097967	Replacement of pump and 75 Hp motor. CH 062-01	\$ 84,086
2016	00097973	Replacement of pump and 60Hp motor. CH 019-01	\$ 61,939
2016	00099051	Replacement of pump and 75 Hp motor. CH 47-01	\$ 84,086
2016	00097963	Replacement of pump and 30Hp motor.	\$ 61,936
2016	00097974	Replacement of pump and 50Hp motor Sta. 2-01.	\$ 61,939
2017	00097885	Replacement of pump and 50Hp motor. CH 011-01	\$ 63,485
2017	00097962	Replacement of pump and 75Hp motor. CH 059-01	\$ 86,188
2017	00097965	Replacement of pump and 75 Hp motor CH 056-01	\$ 86,188
2017	00097968	Replacement of pump and 75 Hp motor. CH 034-01	\$ 86,188
2017	00098400	Replacement of pump and 100 Hp motor. CH 041-01	\$ 103,641
2018	00097966	Replacement of pump and 75 Hp motor. CH 027-01	\$ 88,342
2018	00097969	Replacement of pump and 75 Hp motor. CH 023-01	\$ 88,342
2018	00097970	Replacement of pump and 75 Hp motor. CH 048-01	\$ 88,342
2018	00097981	Replacement of pump and 75 Hp motor. CH 029-01	\$ 88,342
2018	00098398	Replacement of pump and 75 Hp motor. CH 063-01	\$ 88,342
Total (2016)			\$ 417,935
Total (2017)			\$ 425,689
Total (2018)			\$ 441,712

2

3 Pumps and motors should only be replaced when efficiency test and cost benefit analysis  
4 justify the need for replacement. ORA used the CWS rating system to evaluate need for  
5 pump replacement. Refer to ORA's Report on Plant– Common Issues for a discussion on

1 CWS's and ORA's methodology for pump and motor replacement. CWS provided  
2 updated pump performance test results in response to data requests JMI-002 and JMI-  
3 018.<sup>146</sup> **Table 4-F** shows the list of the pump efficiency and CWS rating from the most  
4 recent pump test.

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<sup>146</sup> CWS Response to ORA Data Request JMI-002, Q. 3.b and JMI-018, Q. 1.b.



**Table 4-F: ORA’s Pump and Motor Replacement Project Recommendations–  
Chico District**

PID	Pump	Motor HP	Efficiency	CWS Rating
00097961	CH 018-01	60	46.45%	Low
00097967	CH 062-01	75	69.64%	Very Good
00097973	CH 019-01	60	69.93%	Very Good
00099051	CH 047-01	75	68.67%	Good
00097963	HC 001-01	30	55.69%	Fair
00097974	HC 002-01	50	52.02%	Low
00097885	CH 011-01	50	62.02%	Good
00097962	CH 059-01	75	61.44%	Good
00097965	CH 056-01	75	66.39%	Very Good
00097968	CH 034-01	75	53.90%	Low
00098400	CH 041-01	100	53.32%	Low
00097966	CH 027-01	75	75.10%	Very Good
00097969	CH 023-01	75	59.59%	Fair
00097970	CH 048-01	75	72.49%	Very Good
00097981	CH 029-01	75	56.30%	Fair
00098398	CH 063-01	75	67.06%	Very Good

Pumps with a CWS rating of “low” (or lower) are reasonable for replacement. The pump test concludes that only some of the pumps are considered reasonable for replacement. CWS’s request to replace pump CH. 11-1 (PID 97885) is not necessary since this project is already included within the scope and cost estimate of the Overhaul of Station 11

1 project (PID 97638). CWS confirmed that PID 97885 was incorrectly submitted, and the  
2 project will be cancelled and the replacement of pump CH 11-1 is already incorporated in  
3 PID 97638.<sup>147</sup> **Table 4-G** shows ORA recommendations for CWS's proposed pump and  
4 motor replacement projects.

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<sup>147</sup> CWS Response to ORA Data Request JMI-006, Q. 1.

**Table 4-G: ORA's Pump and Motor Replacement Project Recommendations–  
Chico District**

Year	PID	Description	Cost
2016	00097961	Replacement of pump and 60 Hp motor. CH 018-01	\$ 63,950
2016	00097967	Replacement of pump and 75 Hp motor. CH 062-01	\$ 0
2016	00097973	Replacement of pump and 60Hp motor. CH 019-01	\$ 0
2016	00099051	Replacement of pump and 75 Hp motor. CH 47-01	\$ 0
2016	00097963	Replacement of pump and 30Hp motor.	\$ 0
2016	00097974	Replacement of pump and 50Hp motor Sta. 2-01.	\$ 61,939
2017	00097885	Replacement of pump and 50Hp motor. CH 011-01	\$ 0
2017	00097962	Replacement of pump and 75Hp motor. CH 059-01	\$ 0
2017	00097965	Replacement of pump and 75 Hp motor CH 056-01	\$ 0
2017	00097968	Replacement of pump and 75 Hp motor. CH 034-01	\$ 86,188
2017	00098400	Replacement of pump and 100 Hp motor. CH 041-01	\$ 103,641
2018	00097966	Replacement of pump and 75 Hp motor. CH 027-01	\$ 0
2018	00097969	Replacement of pump and 75 Hp motor. CH 023-01	\$ 0
2018	00097970	Replacement of pump and 75 Hp motor. CH 048-01	\$ 0
2018	00097981	Replacement of pump and 75 Hp motor. CH 029-01	\$ 0
2018	00098398	Replacement of pump and 75 Hp motor. CH 063-01	\$ 0
Total (2016)			\$ 125,889
Total (2017)			\$ 189,829
Total (2018)			\$ 0

*c. Station overhaul projects (PIDs 97444, 97626, 97638, 97672, 97772, and 97767)*

**Table 4-H** below shows CWS's request for station overhaul projects.

**Table 4-H: CWSs' Proposed Station Overhaul Projects– Chico District**

Year	PID	Description	Cost
2016	97444	Station Overhaul - Station 16	\$ 590,370
2016	97626	Station Overhaul - Station 7	\$ 585,429
2017	97638	Station Overhaul - Station 11	\$ 578,613
2017	97672	Station Overhaul - Station 44	\$ 580,090
2017	97772	Station Overhaul - Station 14	\$ 445,345
2018	97767	Station Overhaul - Station 12	\$ 552,451
Total (2016)			\$ 1,175,799
Total (2017)			\$ 1,604,048
Total (2018)			\$ 552,451

The station overhaul projects are for the replacement or improvement of multiple assets at a single station. ORA evaluated each of the individual components proposed to be replaced at each station to determine whether replacement is necessary.

*i. Station overhaul— Stations 16, 7, 11, 14, and 12 (PIDs 97444, 97626, 97638, 97772, and 97767)*

**Table 4-H** above shows the proposed costs for the aforementioned projects.<sup>148</sup> ORA does not agree with the need to replace the chemical injection facilities at Stations 7, 11, 12, 14, and 16. During the site tour on September 29, 2015, ORA noticed that the

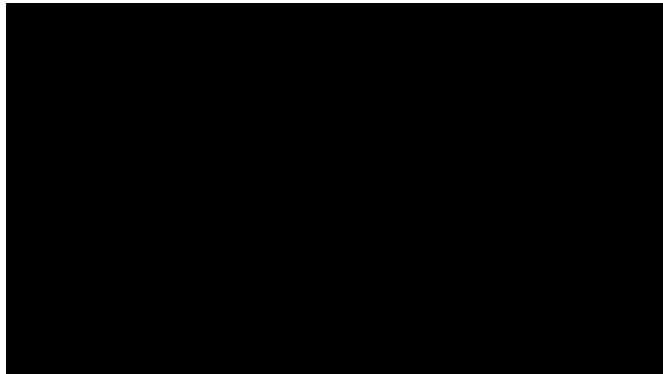
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<sup>148</sup> For PID 97444, CWS is requesting to replace the existing building with a new pump shelter (as well as the electrical and mechanical components), remove existing air stripper, replace well pump (upsized), fence and gate, driveway and approach, chemical injection facility, SCADA, and any necessary valves. In PID 97626, CWS is requesting to replace the pump building with an outdoor pump shelter (as well as the electrical and mechanical components), replace pump, new well blow off, piping, and modify driveway. CWS is requesting to replace the pump building, electrical equipment, existing piping, fence and gate, pump, modify existing blow off, chemical injection facility, SCADA, and any necessary valves as part of PID 97638. For PID 97772, CWS is requesting to replace the existing building (including the electrical and mechanical components), well pump, chemical injection facility, and necessary SCADA. PID 97767, CWS is requesting to replace the existing building (as well as the mechanical and electrical components), remove existing sand trap and waste pit, replace necessary piping, well pump, fencing and gate, modify driveway, storm drain pipe and well blow off, and SCADA.

1 chemical facilities at each of the stations were in good condition. For example, **Image 4-**  
2 **A** shows the existing chemical injection facility at Station 14.

3 **Image 4-A: Chemical Injection Facility at Station 14**

4 **\*\*\*BEGIN CONFIDENTIAL\*\*\***



6 **\*\*\*END CONFIDENTIAL\*\*\***

7 As shown in **Image 4-A** above, ORA finds that the existing chemical injection facility  
8 appears to be in good condition; therefore it does not make sense to replace the existing  
9 chemical injection facilities given the current condition of the facility.<sup>149</sup> ORA removed  
10 the costs of the chemical injection facilities from the cost of the projects.

11 ORA does not agree with the replacement of the pump building at Stations 7, 11, 12, 14,  
12 16. According to the company, the pump building needs to be replaced based on the age  
13 of the existing building. ORA visited the aforementioned stations during the site tour of  
14 the Chico district on September 29, 2015. At Stations 7, 11, 12, 14, 16, there is some  
15 wear on the floor of the building due to use. The exterior paint of the buildings at

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<sup>149</sup> The condition of the chemical injection facilities at Stations 7, 11, 12, and 16 are similar to what is shown at Station 14.

1 Stations 7, 11, 12, and 14 are somewhat faded due to age. \*\*\*BEGIN  
2 CONFIDENTIAL\*\*\* [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 [REDACTED] \*\*\*END CONFIDENTIAL\*\*\* After visiting the sites, it seems that any  
6 potential issues with the pump structure could be fixed through maintenance and does not  
7 warrant the entire replacement of the building. ORA removed the portions of the cost of  
8 the project related to new infrastructure to replace the pump building.<sup>150</sup>

9 ORA also does not agree with the need to replace the existing well blowoff and storm  
10 drain at Stations 7 and 11 (part of the scope of PIDs 97626 and 97638, respectively).<sup>151</sup>  
11 According to CWS, the current well blow off at the aforementioned stations are  
12 connected to the current sewer system which is not an ideal set up since it requires sewer  
13 use fees.<sup>152</sup> During the district tour of the Chico district on September 29, 2015, ORA  
14 asked CWS the amount of sewer use fees the company has to pay due the current blowoff  
15 configuration being connected to the sewer system. CWS could not quantify the sewer  
16 use fees since the discharge from the station does not occur on a continuous basis. Due to  
17 the infrequency of the discharge from the station, it seems that the sewer use fees that the  
18 company incurs due to the discharge from this station does not justify the need to replace  
19 the existing well blowoff and storm drain. ORA removed the cost of the well blowoff  
20 and storm drain from PIDs 97626 and 97638.

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<sup>150</sup> The infrastructure related to the replacement of the pump building is the acoustical pump shelter and the pump foundation.

<sup>151</sup> The well blowoff is the drain line for the pump discharge.

<sup>152</sup> CWS Project Justification Report, page CH PJ – 287, Lines 28 to 29 (for PID 97626). Similarly, CWSs Project Justification Report, page CH PJ – 301, Lines 29 to 31 for PID 97638.

1 ORA also does not agree with the replacement of the flow meters at Stations 7, 11, 12,  
2 14, and 16. ORA requested from CWS the maintenance records regarding the flow  
3 meters from the past six years (2009-2014).<sup>153</sup> Refer to ORA's Report on Plant –  
4 Common Issues regarding ORA's methodology for evaluating the flow meter  
5 replacement projects. ORA reviewed the maintenance records for the Chico district and  
6 noticed that there has not been any record of maintenance for any of the flow meters at  
7 the aforementioned stations.<sup>154</sup> Since it seems that there is no evidence that the flow  
8 meters are malfunctioning, it does not necessary to replace the flow meters at the  
9 aforementioned stations. ORA removed the cost of the flow meter from PIDs 97444,  
10 97626, 97638, 97772, and 97767.

11 In addition, ORA does not agree with the replacement of the panelboard at Station 12  
12 (part of the scope of PID 97767). ORA reviewed the recorded maintenance report for the  
13 past five years (2010-2014).<sup>155</sup> Over the past five years, the only recorded maintenance  
14 was due to preventative maintenance. Based on the recorded maintenance record of the  
15 panelboard, it does not seem necessary to replace the panelboard at Station 12. ORA  
16 removed the cost of the panelboard, including the company labor associated with the  
17 panelboard replacement. ORA based the labor associated with the panelboard  
18 replacement on the estimated labor CWS estimates one of their proposed panelboard  
19 replacement projects in this rate case (for example, the panelboard replacement project at  
20 Station 24; PID 98014). Since the cost estimate are both PIDs 97767 and 98014 are  
21 based on the replacement of a 200 amp panelboard, it seem reasonable to base the  
22 company labor cost associated with the panelboard portion of PID 97767 on the company

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<sup>153</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i.

<sup>154</sup> Ibid.

<sup>155</sup> CWS Response to ORA Data Request JMI-0017, Q. 1.c.

labor cost portion of PID 98014. **Table 4-I** below shows ORA’s recommended budget for PIDs 97444, 97626, 97638, 97772, and 97767 incorporating the aforementioned edits.

**Table 4-I: ORA’s Recommended Station Overhaul Projects Cost**

Year	PID	Description	Cost
2016	97444	Station Overhaul - Station 16	\$ 545,050
2016	97626	Station Overhaul - Station 7	\$ 517,746
2017	97638	Station Overhaul - Station 11	\$ 514,795
2017	97772	Station Overhaul - Station 14	\$ 398,891
2018	97767	Station Overhaul - Station 12	\$ 384,881

*ii. Station overhaul—Station 44 (PID 97672)*

CWS requests \$580,090 in 2017 to replace the existing building and station piping, install storm drain pipe, and chemical injection facility. ORA does not agree with the need for the blowoff and storm pipe portion of the project. \*\*\*BEGIN CONFIDENTIAL\*\*\*

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] \*\*\*END

**CONFIDENTIAL\*\*\*** ORA removed the cost of the storm pipe and blowoff portion from PID 97672.

In addition, CWS already proposes to replace the flow meter at this station as part of the scope to replace the flow meters and vaults replacement project at Stations 20, 22, and 44 (PID 98735). ORA recommends not replacing the flow meter at Station 44 (as part of PID 98735). ORA's recommendation regarding PID 98715 is discussed later in this chapter. After removing the cost of the flow meter and the storm pipe and blowoff, ORA recommends a budget of \$534,744 for PID 97672.



1 *d. Tank painting*

2 **Table 4-J** below shows CWS’s request for tank painting projects in 2016-2018 for the  
3 Chico district.

4 **Table 4-J: Tank Painting Budgets– Chico District**

Year	PID	Tank	Cost
2017	n/a	St. 3-T4	\$ 175,000
2018	n/a	St. 8-T3	\$ 175,000

5  
6 According to CWS, both Tanks 4 and 3 are no longer in service and the company is  
7 finalizing the plan to demolish the aforementioned tanks.<sup>156</sup> CWS plans on removing all  
8 elevated tanks from service. Since the tanks are no longer in service and CWS plans to  
9 demolish the tanks, it does not make sense to paint the tanks. ORA recommends  
10 removing the cost of the aforementioned tank painting projects.

11 *e. Vehicle replacement (PIDs 99119, 99121, and 99122)*

12 CWS requests \$374,779, \$127,676, and \$142,348 in 2016-2018, to replace vehicles based  
13 on the mileage of the vehicle. CWS applies a 120,000-mile replacement criteria to their  
14 vehicles regardless of the vehicle’s gross vehicle rate weighting.<sup>157</sup> For the reasons  
15 presented in its Report on Plant– Common Issues, ORA recommends removing the cost  
16 to replace three vehicles since they do not meet the California’s Department of General

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<sup>156</sup> CWS Response to ORA Data Request JMI-001, Q. 5.a and JMI-006, Q. 3.a.

<sup>157</sup> CWS Project Justification Report, page CH PJ – 474.

1 Services (“DGS”) criteria.<sup>158</sup> ORA recommends a budget of \$374,779, \$42,559, and  
2 \$92,985 for PIDs 99119, 99121, and 99122, respectively.

3 *f. Conservation garden at Station 34 (PID 97718)*

4 CWS requests \$69,121 in 2016 to rework the existing landscape by removing the turf and  
5 using drought tolerant landscaping. During the last rate case, CWS informed ORA that  
6 the California Department of Transportation (“Cal Trans”) acquired a portion of the  
7 Station 34 property for an off-ramp expansion project.<sup>159</sup> CWS is subjected to both the  
8 Senate Bill (SB) X7-7 and Executive Order B-29-15.<sup>160</sup> For the year 2020, CWS has a  
9 SB X7-7 target of 234 gallons per capita per day (“GPCD”).<sup>161</sup> **Table 4-K** below shows  
10 the annual recorded GPCD for the Chico district.

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<sup>158</sup> In this rate case, two vehicles in 2017, and one vehicle in 2018 do not meet the DGS criteria. The DGS Vehicle Replacement Policy sets a replacement schedule criteria based on mileage and vehicle’s gross vehicle weight rating (“GVWR”).

<sup>159</sup> According to CWS, the portion of the lot that was sold was less than 1,000 square feet. For the land, CWS was compensated \$888.

<sup>160</sup> Senate Bill X7-7 sets an overall goal to reduce capita urban water use by 20% by December 31, 2020 (and 10% by December 31, 2015). Executive Order B-29-15 was implemented by Governor Jerry Brown for the State Water Resource Board to impose restrictions to achieve a 25% reduction in potable urban water usage through February 28, 2016. The reduction in water usage is based on the amount of water used in 2013.

<sup>161</sup> 2015 GRC Conservation Workbook-2012GRC Activity. This workpaper was provided in response to data request HMC-001, Q. 1. GPCD is a metric used for comparison purposes concerning usage habits or how efficient water usage is being utilized in terms for discussing water use and conservation.

**Table 4-K: 2011-2014 Recorded GPCD – Chico District<sup>162</sup>**

Year	GPCD	SBx7-7 2015 GPCD Target	% Difference Over 2015 GPCD Target	SBx7-7 2020 GPCD Target	% Difference Over 2020 GPCD Target
2011	218	263	-17.11%	234	-6.84%
2012	222	263	-15.59%	234	-5.13%
2013	223	263	-15.21%	234	-4.70%
2014	188	263	-28.52%	234	-19.66%

As shown in **Table 4-K** above, the annual GPCD in the last four years has been consistently under the SB X7-7 target.<sup>163</sup> In June, July, and August of 2015, CWS had a reduction of 41%, 44%, and 43% (respectively) of recorded 2013 usage, exceeding the current 32% Mandatory Drought Reduction (Executive Order B-29-15) from the 2013 usage levels.<sup>164</sup> Since CWS is compliant with both SB X7-7 and has been consistently compliant with Executive Order B-29-15, ORA believes that the need for modifying the existing conservation garden is not justified. ORA recommends not allowing PID 97718 into rates.

***g. Upgrade cathodic protection system at CH. St. 3-Tank 4 and CH St. 66- Tank 1 (PID 97454)***

CWS requests \$39,230 in 2018 to upgrade the cathodic protection system to adjust the operating voltage necessary to maintain the optimum current output automatically at CH.

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<sup>162</sup> CWS District Tour Presentation to ORA dated September 29, 2015.

<sup>163</sup> SBx7-7 2020 GPCD target was taken from CWS's Conservation Report-2015 GRC. SBx7-7 2015 GPCD target was taken from the 2015 GRC Conservation Workbook-2012GRC Activity workpaper provided in response to data request HMC-001, Q. 1.

<sup>164</sup> CWS District Tour Presentation to ORA dated September 29, 2015. In addition, CWS posted on their website the December 2015 Conservation Progress Update (refer to: [https://www.calwater.com/latest\\_news/december-2015-conservation-progress-update/](https://www.calwater.com/latest_news/december-2015-conservation-progress-update/)). According to the December 2015 Conservation Progress Update, the Chico district had a cumulative reduction of 39% since June 1, 2015, which exceeds state board percent target reduction of 32%.

1 Station 3-Tank 4 and Station 66- Tank 1. ORA does not agree that the cathodic  
2 protection system needs to be replaced at the Station 3, Tank 4 since that tank is no  
3 longer in service.<sup>165</sup> For tanks with a volume of 1.5 million gallons (“MG”) or less, CWS  
4 estimates the replacement cost based on a fixed-dollar average unit cost.<sup>166</sup> Since both  
5 tanks are less than 1.5 MG, ORA removed the cost for the cathodic protection upgrade  
6 from CH. Station 3, Tank 4 by dividing CWS’s proposed budget in half since CWS  
7 estimates that the cost for the cathodic protection at CH. Station 3, Tank 4 and CH.  
8 Station 66, Tank 1 should be the same amount. ORA recommends a budget of \$19,615  
9 for PID 97454.

10 *h. Replace SCADA software and hardware (PID 99106)*

11 CWS requests \$783,189 in 2018 to replace the SCADA hardware and software due to age  
12 (will no longer be supported by vendor) and reconfigure the protocol in which data is  
13 collected in the district. CWS is proposing to install automatic pump controls at each  
14 station to connect directly with the SCADA at the district operations center. This project  
15 is part of a larger overall project that is proposed in multiple districts for the SCADA  
16 Master Plan. For the reasons identified in ORA’s Report on Plant– Common Issues,  
17 ORA recommends disallowing this project.

18 *i. Flow meter and vault replacement (PIDs 98734, 98735, and 98740)*

19 CWS requests \$150,774, \$154,543 and \$78,990 in 2016-2018, respectively to replace  
20 three existing flow meters annually where the mechanical bearings are worn and need to

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<sup>165</sup> CWS Response to ORA Data Request JMI-006, Q. 3.a. CWS is finalizing the plan to demolish the tank.

<sup>166</sup> CWS Project Justification Report, page BAY PJ – 308, Lines 145 to 146. Station 3, Tank 4 and Station 66, Tank 1 have a storage capacity of 0.3MG and 0.5MG.

1 be replaced.<sup>167</sup> ORA does not agree with the need to replace the flow meter at Station 44  
2 for PID 98735.<sup>168</sup>

3 ORA requested from CWS the maintenance records regarding the flow meters from the  
4 past six years (2009-2014).<sup>169</sup> Refer to ORA's Report on Plant – Common Issues  
5 regarding ORA's methodology for evaluating the flow meter replacement projects. For  
6 the flow meter at Station 44, the only maintenance for the flow meter is that the flow  
7 meter had to be calibrated once. The calibration of the flow meter is a normal  
8 maintenance for a flow meter due to changes in the system.<sup>170</sup> The infrequency over the  
9 number of times the flow meter needed to be calibrated over the six year period suggests  
10 that there is no evidence that the flow meter is not functioning properly.

11 ORA adjusted the project cost for PID 98735 proportionally based on the number of flow  
12 meters ORA recommends to be replaced. CWS estimates the unit cost of the flow meter

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<sup>167</sup> CWS Response to ORA Data Request SN2-012, Q. 2 d. i and ii. According to CWS, the company is proposing to replace one flow meter at Stations 30, 31, and 32 for PID 98734. In addition, CWS is proposing to replace one flow meter at Stations 20, 22, and 44 for PID 98735. CWS is proposing to replace one flow meter at Stations 25, 50, and 56 for PID 98740. For PID 98740, CWS is only replacing the flow meter (not replacing the vault that accompanies the flow meter).

<sup>168</sup> ORA does not oppose the need to replace the flow meters at Stations 30, 31, and 32 for PID 98734. ORA recommends a budget of \$150,774 for PID 98734. In addition, ORA does not oppose the need to replace the flow meters at Stations 25, 50, and 56 for PID 98740. ORA recommends a budget of \$78,990 for PID 98740.

<sup>169</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i.

<sup>170</sup> The performance of flow meters tends to drift with time, even if there are no signs of deterioration. External factors are often the cause of unpredictable performance shifts while in operations since the flow meter is no longer operating in a controlled environment (such as when the flow meter is being calibrated).

1 and vault based on a quote estimates, regardless of the size of the flow meter.<sup>171</sup> Since  
2 CWS uses the same unit cost for the flow meter and vault regardless of the size of meter,  
3 ORA similarly adjusted the CWS labor proportionally based on the number of flow  
4 meters ORA found appropriate to replace. ORA recommends that only two of the three  
5 flow meters associated with PID 98735 should be replaced, resulting in a budget of  
6 \$103,029 (or two-thirds of CWS's proposed cost of \$153,543).

7 *j. Surface water supply feasibility study (PID 98037)*

8 CWS requests \$387,879 in 2018 for the continuation of a feasibility study to supplement  
9 groundwater supply with surface water from Butte County's State Water Project.<sup>172</sup>

10 CWS wants to reduce the system's reliability of groundwater. The proposed project is  
11 for the continuation of the project.<sup>173</sup> Due to the uncertainty regarding scope and scale,  
12 the final impact on ratepayers should be a concern. CWS is currently entertaining the  
13 idea of forming a partnership with Paradise Irrigation District to utilize their treatment  
14 plant, which would require the treatment plant to be expanded. CWS has not determined

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<sup>171</sup> CWS estimates the unit cost for the flow meter vault based on an invoice provided by West Valley Construction. CWS estimates the unit cost for the flow meter based on a quote provided by Clipper Controls, Incorporated.

<sup>172</sup> Currently, the Chico district is supplied solely on groundwater.

<sup>173</sup> Phase One of the feasibility study identified two alternatives for the conveying surface water: diverting directly from the Thermalito Forebay using a transmission pipeline along the Sacramento Northern Railroad alignment to the district or diversion from the Sacramento River utilizing collector wells and a transmission pipeline along Highway 32 to the district. In addition, Phase One of the project determined the smallest treatment plant capacity required. Phase Two of the feasibility study evaluated the two aforementioned alternatives and identified the construction, permitting, easement acquisition requirements and estimating construction, capital, and operating cost and to get an understanding of the hydrogeological conditions of the proposed diversion point on the Sacramento River for the radial collector. Phase Three of the project evaluated the water supply demand and groundwater level trend projections.

1 the cost required to expand the treatment plant.<sup>174</sup> In addition, the cost to convey the  
2 surface water to the district remains uncertain. According to CWS, the surface water  
3 would not be available until 2020.<sup>175</sup> The Commission should not prematurely commit to  
4 approving a project in a piecemeal fashion when basic details such as cost, benefits, and  
5 effectiveness have yet to be estimated.

6 CWS has shown in the last rate case period that it is willing to complete the required  
7 phases of a project study prior to being authorized by the Commission if the company  
8 determines the project to be necessary.<sup>176</sup> CWS has demonstrated based on its previous  
9 business decisions, that it will likely complete this project regardless of Commission  
10 approval if CWS finds the project necessary. In the event CWS finds it necessary to  
11 continue the study and surface water is found to be a cost effective source of supply,  
12 ORA would retain the opportunity to review the recorded study cost as part of any  
13 potential future cost of any proposed infrastructure necessary to convey the surface water  
14 to the district.

15 *k. Purchase land for new well (PID 97980)*

16 CWS requests \$293,887 in 2016 to purchase land for a future well site. CWS states that  
17 the construction and installation of the well will be proposed in the next GRC. The future

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<sup>174</sup> CWS Response to ORA Data Request JMI-008, Q. 2.b.ii. According to the company, the analysis has not been done to determine if expansion is needed to increase the capacity of the treatment plant. CWS assumes that there would cost sharing for any required treatment plant improvements required to handle the additional demand.

<sup>175</sup> Ibid, Q. 2.c. Butte County is currently leasing Table A water to the Palmdale area until 2020. CWS states that there might be a possibility that Pacific Gas and electric water would be available before then.

<sup>176</sup> The first two phases of the study were conducted in 2012. Phases One through Three of the study were not part of CWS's request in the 2009 and 2012 GRCs (Applications (A.) 9-07-001 and A.12-07-007, respectively). CWS completed this project under Work Order 84677.

1 well will supply water to the future Mountain Vista/Sycamore Glen subdivision housing  
2 development located in northeast Chico.<sup>177</sup> ORA understands the scope of the project;  
3 however, ORA disagrees with CWS’s proposed method to recover the revenue from this  
4 project. ORA recommends that the Commission require CWS to apply Tariff Rule 15  
5 and authorize CWS to recover all costs associated with any future development of the  
6 well through a combination of facility fees and contributions from the developer. The  
7 cost of the well should not be included in rate base.<sup>178</sup> The future well is to serve new  
8 development and CWS Chico customers should not be cross-subsidizing the  
9 development. According to CWS, the proposed well does not seem to be replacing any  
10 wells currently in service.<sup>179</sup> It seems that the proposed well will primarily be used to  
11 supply the new development. Since the well will not be built during the current GRC, it  
12 is not fair for existing customers to pay upfront for costs associated with a well that will  
13 serve a different set of future customers.<sup>180</sup> The cost of the well should be borne by the  
14 developer to serve the new customers who benefit from the well.

15 ***I. Meter replacement program (PID CHD0900)***

16 **Table 4-L** below lists CWS’s requests and ORA’s recommendation on the replacement  
17 budget of small and large meters in the Chico district. ORA provides a discussion of its  
18 recommendation in ORA’s Report on Plant– Common Issues.

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<sup>177</sup> According to CWS, when the Mountain Vista and Sycamore Glen Subdivision are built out, they will consist of 406 single family residential, 270 multifamily residential, 20 townhouses, and two acres of commercial. The developer is planning to have it completed by 2020.

<sup>178</sup> CWS Tariff Rule 15. Refer to [https://www.calwater.com/docs/rates/rules/rule\\_15.pdf](https://www.calwater.com/docs/rates/rules/rule_15.pdf).

<sup>179</sup> CWS Response to ORA Data Request JMI-008, Q. 1.b.i. CWS acknowledges that this proposed well will not replace any wells currently in service. CWS is planning on removing some inactive wells due to either water quality or well yield.

<sup>180</sup> CWS plans to request the construction of the well during the 2018 GRC.



**Table 4-L: Meter Replacement Budgets – Chico District**

District:	Chico		
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	CHD0900	\$ 91,587	\$ 189,913
2017	CHD0900	\$ 93,748	\$ 194,660
2018	CHD0900	\$ 95,886	\$ 199,527

*m. Well level transducers at 20 stations (PID 98714)*

CWS requests \$163,096 in 2018 to install 20 well water level sensors throughout the district that currently do not have any well level sensors. According to CWS, the well level readings are done on a monthly basis to understand how the system operates; however monthly readings do not provide enough data to identify production trends.<sup>181</sup> The well level sensors that are installed under the proposed project will be connected to the current SCADA system. ORA does not agree with the need for the project since the current monthly readings should provide adequate data to determine the well levels and trends for production planning purposes. In addition, there is no cost savings associated with this project. According to the company, any cost savings related to the project would be related to labor costs associated with the meter reading. According to the company, the manual reading of the wells on a monthly basis would require a minimum of one hour per month; resulting in a cost of approximately \$780 annually (including overhead). The revenue requirement associated with the capital of the proposed project

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<sup>181</sup> CWS Response to ORA Data Request DG-021, Q. 5.

would be approximately \$2,250 annually.<sup>182</sup> This project does not provide a cost savings, and ORA recommends that the cost of this project not be allowed into rates.

*n. Panelboard replacement projects (PIDs 98014, 98016, and 98032)*

CWS requests \$235,581, \$241,471, and \$234,222 in 2016-2018, respectively to replace three panelboards (one per year outside the station overhaul projects) due to the age and condition of the existing panelboards.<sup>183</sup> For the reasons presented in ORA's Report on Plant – Common Issues, ORA recommends disallowing CWS's requests in its entirety.

**2. Non-Specific Budgets for 2016-2018**

CWS requests \$1,457,900, \$1,492,100, and \$1,526,200 in 2016-2018 annual non-specific budget, respectively to address unforeseen, unplanned, emergency projects, and regulatory compliant projects. ORA's Report on Plant– Common Issues presents ORA's recommended total disallowance of this budget.

**3. 2015 Capital Budget**

*a. 2015 recorded plant*

CWS requests approximately \$11,717,100 for plant additions in 2015, which consists of projects authorized for 2015 in the last GRC and projects authorized from previous

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<sup>182</sup> Email from James Polanco of CWS, to Daphne Goldberg of ORA (December 14, 2015, 3:23PM PT) (on file with author).

<sup>183</sup> PIDs 98014, 98016, and 98032 are for the replacement of the panelboards at Stations 24, 26, and 35 in 2016-2018, respectively.

1 GRCs.<sup>184</sup> ORA's Report on Plant– Common Issues presents its analysis and basis for  
2 adjusting 2015 capital additions for Chico.

3 *b. Well modification at Stations 55-01 and 68-01(PIDs 20905 and 20946)*

4 According to CWS, the two projects are currently on hold due to the drought.<sup>185</sup> Since it  
5 is unknown when the projects will be placed into service, ORA recommends removing  
6 the cost of the projects from approved budgets. In the event CWS completes the projects  
7 and places them into service, the company may request in their next GRC to put the cost  
8 of the projects into rates as assets providing a benefit to the ratepayers. ORA reserves the  
9 right to review the final cost of the projects for prudence.

10 **D. CONCLUSION**

11 ORA's recommendations presented above have been incorporated in the calculations for  
12 estimated Plant in Service shown in Table 7-1 in its Company-wide Report, Appendix  
13 RO.

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<sup>184</sup> Chico Discovery 2015 workpaper, WP8B2 tab.

<sup>185</sup> CWS Response to Supplemental Data Requests, Q. 20.

## **Chapter 5: Plant – Redwood Valley**

### **A. INTRODUCTION**

This chapter presents ORA’s analyses and recommendations for Plant in Service for CWS’s Redwood Valley District. ORA reviewed and analyzed CWS’s testimony, application, Minimum Data Requirements, Supplemental Data Responses, work papers, capital project details, estimating methods, and responses to ORA data requests. ORA also conducted a field investigation on October 6-7, 2015 of some of the proposed specific plant additions before making its own independent estimates including adjustments where appropriate.

### **B. SUMMARY OF RECOMMENDATIONS**

Based on ORA’s review and analysis of CWS’s requested plant additions, ORA recommends disallowance, adjustment, deferral, or Advice Letter treatment where appropriate. These recommendations form the basis of ORA’s recommended capital budget summary presented in **Tables 5-A, 5-B, 5-C, and 5-D** below. ORA’s estimated plant additions also reflect recommendations in its Report on Plant– Common Issues regarding pipeline replacement, meter replacement, non-specific budget, and 2015 recorded plant. **Tables 5-E, 5-F, 5-G, and 5-H** present ORA project-specific adjustments.

**Table 5-A: Capital Budget Summary – Unified Subarea**

Unified (\$000)	2015	2016	2017	2018	Annual Average
ORA	\$ -	\$ 62.4	\$ 27.8	\$ 47.5	\$ 34.4
CWS	\$ 196.7	\$ 426.0	\$ 400.5	\$ 429.5	\$ 363.2
CWS > ORA	\$ 196.7	\$ 363.6	\$ 372.7	\$ 382.1	\$ 328.8
ORA as % of CWS	0%	15%	7%	11%	8%

**Table 5-B: Capital Budget Summary – Coast Springs Subarea**

Coast Springs (\$000)	2015	2016	2017	2018	Annual Average
ORA	\$ 13.0	\$ 118.4	\$ 87.8	\$ 89.8	\$ 77.3
CWS	\$ 42.0	\$ 213.6	\$ 179.9	\$ 184.4	\$ 155.0
CWS > ORA	\$ 29.0	\$ 95.2	\$ 92.1	\$ 94.6	\$ 77.7
ORA as % of CWS	31%	55%	49%	49%	46%

**Table 5-C: Capital Budget Summary – Lucerne Subarea**

Lucerne (\$000)	2015	2016	2017	2018	Annual Average
ORA	\$ -	\$ 156.5	\$ 88.7	\$ 74.3	\$ 79.9
CWS	\$ 257.9	\$ 705.1	\$ 442.7	\$ 437.4	\$ 460.8
CWS > ORA	\$ 257.9	\$ 548.6	\$ 354.1	\$ 363.1	\$ 380.9
ORA as % of CWS	0%	22%	20%	17%	15%

**Table 5-D: Capital Budget Summary – Redwood Valley (General)<sup>186</sup>**

Redwood Valley (\$000)	2015	2016	2017	2018	Annual Average
ORA	\$ 278.2	\$ 41.5	\$ 42.6	\$ 43.6	\$ 101.5
CWS	\$ 276.8	\$ 300.5	\$ 307.7	\$ 314.7	\$ 299.9
CWS > ORA	\$ (1.4)	\$ 259.0	\$ 265.2	\$ 271.0	\$ 198.4
ORA as % of CWS	101%	14%	14%	14%	36%

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<sup>186</sup> The Redwood Valley (General) section is for plant items that are to be shared among the three subareas. In general, the plant items included in this section is for (but not limited to) equipment (such as vehicles), meters, and non-specific funding. The cost of the plant items is divided among the three subareas using a four factor method.

1

**Table 5-E: Capital Budget Details – Unified Subarea**

<b>2015</b>	<b>Project #</b>	<b>Project Description</b>	<b>ORA</b>	<b>CWS</b>	<b>CWS &gt; ORA</b>	<b>ORA / CWS</b>
1	00061535	Seismic Upgrades - Sta. 2 Steel Tank 1	\$ -	\$ 8,640	\$ 8,640	0%
2	00071874	Interior & Exterior Ladders - Sta. 2 Tank 3 - Armstrong Valley	\$ -	\$ 14,833	\$ 14,833	0%
3	00064891	Armstrong Valley Lane - 580' 6" PVC; 7 1" Services; and 1 Hydrant	\$ -	\$ 96,780	\$ 96,780	0%
4	00064892	Noel Heights - Sta. 2 Tanks to Toyon Drive - 410' 6" PVC; Reconnect 1 2" service line	\$ -	\$ 47,880	\$ 47,880	0%
5	00055888	Retrofit Roof-Hatch to include vent, Install Interior and Exterior Ladders - Hawkins Sta.1 Tank 1	\$ -	\$ 11,448	\$ 11,448	0%
<b>Specifics Total</b>			<b>\$ -</b>	<b>\$ 179,581</b>	<b>\$ 179,581</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ 17,138</b>	<b>\$ 17,138</b>	<b>0%</b>
<b>TOTAL 2015</b>			<b>\$ -</b>	<b>\$ 196,719</b>	<b>\$ 196,719</b>	<b>0%</b>

2

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098552	Routine replacement of membrane filters with historical operational life of 3 yrs. To meet WQ compliance, well under influence of surface water.	\$ 6,978	\$ 6,978	\$ -	100%
2	00098554	Support structure for NH TP electrical service & controls	\$ 2,711	\$ 2,711	\$ -	100%
3	00099373	The 2016 main replacement program will replace 1,409 feet of pipelines in the Unified(ARMV) district at an estimated cost of \$186 per foot.	\$ 27,120	\$ 390,709	\$ 363,589	7%
4	00102003	Install emergency generator at Station 1 in Hawkins	\$ 25,640	\$ 25,640	\$ -	100%
<b>Specifics Total</b>			<b>\$ 62,449</b>	<b>\$ 426,038</b>	<b>\$ 363,589</b>	<b>15%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 62,449</b>	<b>\$ 426,038</b>	<b>\$ 363,589</b>	<b>15%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099375	The 2017 main replacement program will replace 1,409 feet of pipelines in the Unified(ARMV) district at an estimated cost of \$186 per foot.	\$ 27,760	\$ 400,477	\$ 372,717	7%
<b>Specifics Total</b>			<b>\$ 27,760</b>	<b>\$ 400,477</b>	<b>\$ 372,717</b>	<b>7%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 27,760</b>	<b>\$ 400,477</b>	<b>\$ 372,717</b>	<b>7%</b>

2

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098431	Install 18' x 41' metal carport over well yard to provide protection and improve operations & maintenance during inclement weather. To include moveable panels for well maintenance.	\$ 5,696	\$ 5,696	\$ -	100%
2	00098466	Airgap retrofit on tank overflow	\$ 6,265	\$ 6,265	\$ -	100%
3	00098623	Replace roof hatch on Sta. 102-T1 & T2; Sta. 103-T1 & T2	\$ 7,097	\$ 7,097	\$ -	100%
4	00099376	The 2018 main replacement program will replace 1,409 feet of pipelines in the Unified(ARMV) district at an estimated cost of \$186 per foot.	\$ 28,393	\$ 410,489	\$ 382,096	7%
<b>Specifics Total</b>			<b>\$ 47,450</b>	<b>\$ 429,547</b>	<b>\$ 382,096</b>	<b>11%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 47,450</b>	<b>\$ 429,547</b>	<b>\$ 382,096</b>	<b>11%</b>

**Table 5-F: Capital Budget Details – Coast Springs Subarea**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00061959	Seismic Upgrade - Sta. 8 T1 Ravine Tank	\$ 13,037	\$ 8,640	\$ (4,397)	151%
<b>Specifics Total</b>			<b>\$ 13,037</b>	<b>\$ 8,640</b>	<b>\$ (4,397)</b>	<b>151%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ 33,400</b>	<b>\$ 33,400</b>	<b>0%</b>
<b>TOTAL 2015</b>			<b>\$ 13,037</b>	<b>\$ 42,040</b>	<b>\$ 29,003</b>	<b>31%</b>



2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098422	Replacement of 6 COS PALL membranes at the COS STA 07 treatment plant because the PALL membranes have reached the end of thier service life.	\$ 25,370	\$ 25,370	\$ -	100%
2	00098555	Replace roof at Well 4 shed; houses Well electrical controls to TP operations, roof failing, termite damage, Protects electrical & booster pump from coastal salt air corrosion.	\$ -	\$ 5,421	\$ 5,421	0%
3	00098631	Routine replacement of chem feed peristaltic pump and spare head for ammonia injection required for chloramination disinfection system.	\$ 7,266	\$ 7,266	\$ -	100%
4	00099358	The 2016 main replacement program will replace 633 feet of pipelines in the Coast Springs district at an estimated cost of \$186 per foot.	\$ 85,799	\$ 175,528	\$ 89,729	49%
<b>Specifics Total</b>			<b>\$ 118,435</b>	<b>\$ 213,586</b>	<b>\$ 95,150</b>	<b>55%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 118,435</b>	<b>\$ 213,586</b>	<b>\$ 95,150</b>	<b>55%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099362	The 2017 main replacement program will replace 633 feet of pipelines in the Coast Springs district at an estimated cost of \$186 per foot.	\$ 87,824	\$ 179,916	\$ 92,092	49%
<b>Specifics Total</b>			<b>\$ 87,824</b>	<b>\$ 179,916</b>	<b>\$ 92,092</b>	<b>49%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 87,824</b>	<b>\$ 179,916</b>	<b>\$ 92,092</b>	<b>49%</b>

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099363	The 2018 main replacement program will replace 633 feet of pipelines in the Coast Springs district at an estimated cost of \$186 per foot.	\$ 89,826	\$ 184,414	\$ 94,588	49%
<b>Specifics Total</b>			<b>\$ 89,826</b>	<b>\$ 184,414</b>	<b>\$ 94,588</b>	<b>49%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 89,826</b>	<b>\$ 184,414</b>	<b>\$ 94,588</b>	<b>49%</b>

**Table 5-G: Capital Budget Details – Lucerne Subarea**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00020333	Country Club Drive - 14th to 10th Ave. - Lucerne - 1,020' 8" PVC; 32 1" Services; 2 Hydrants	\$ -	\$ 257,889	\$ 257,889	0%
<b>Specifics Total</b>			<b>\$ -</b>	<b>\$ 257,889</b>	<b>\$ 257,889</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2015</b>			<b>\$ -</b>	<b>\$ 257,889</b>	<b>\$ 257,889</b>	<b>0%</b>

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097669	Install auto potential CP system at Lucerne 4-T1	\$ 18,670	\$ 18,670	\$ -	100%
2	00098239	Install EBAA pipe fitting and complete piping changes to seismically retrofit the tank at Sta. 4 Tank 1.	\$ 46,361	\$ 46,361	\$ -	100%
3	00098459	Replacement of 48 Lucerne PALL membranes at the LUC STA 01 treatment plant because the PALL membranes have reached the end of their service life.	\$ -	\$ 198,582	\$ 198,582	0%
4	00098482	Overflow airgap retrofit; Install new int. & ext. safety climb rail; Remove ext. ladder cage	\$ 20,453	\$ 25,183	\$ 4,730	81%
5	00099355	The 2016 main replacement program will replace 1,493 feet of pipelines in the Lucerne district at an estimated cost of \$186 per foot.	\$ 71,006	\$ 414,002	\$ 342,996	17%
6	LUC0900	Meter Replacement Program Water Spec Cap (CWSCO Regulated)	\$ -	\$ 2,326	\$ 2,326	0%
<b>Specifics Total</b>			<b>\$ 156,490</b>	<b>\$ 705,124</b>	<b>\$ 548,634</b>	<b>22%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 156,490</b>	<b>\$ 705,124</b>	<b>\$ 548,634</b>	<b>22%</b>

1

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00098484	Replace roof hatch; Replace cupola vent	\$ 15,972	\$ 15,972	\$ -	100%
2	00099356	The 2017 main replacement program will replace 1,493 feet of pipelines in the Lucerne district at an estimated cost of \$186 per foot.	\$ 72,682	\$ 424,353	\$ 351,671	17%
3	LUC0900	Meter Replacement Program Water Spec Cap (CWSCO Regulated)	\$ -	\$ 2,384	\$ 2,384	0%
<b>Specifics Total</b>			<b>\$ 88,654</b>	<b>\$ 442,709</b>	<b>\$ 354,055</b>	<b>20%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 88,654</b>	<b>\$ 442,709</b>	<b>\$ 354,055</b>	<b>20%</b>

1

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099357	The 2018 main replacement program will replace 1,493 feet of pipelines in the Lucerne district at an estimated cost of \$186 per foot.	\$ 74,339	\$ 434,961	\$ 360,622	17%
2	LUC0900	Meter Replacement Program Water Spec Cap (CWSCO Regulated)	\$ -	\$ 2,444	\$ 2,444	0%
<b>Specifics Total</b>			<b>\$ 74,339</b>	<b>\$ 437,405</b>	<b>\$ 363,066</b>	<b>17%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 74,339</b>	<b>\$ 437,405</b>	<b>\$ 363,066</b>	<b>17%</b>

2

1 **Table 5-H: Capital Budget Details – Redwood Valley (General)**<sup>187</sup>

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00064849	Field - 4 New Handhelds for Meter Reading - 2 @ Guerneville and 2 @ Lucerne	\$ -	\$ 26,020	\$ 26,020	0%
2	00064941	Vehicle - 0.5 Ton Pick Up with Accessories	\$ 43,724	\$ 42,000	\$ (1,724)	104%
<b>Specifics Total</b>			<b>\$ 43,724</b>	<b>\$ 68,020</b>	<b>\$ 24,296</b>	<b>64%</b>
<b>Non-Specifics Total</b>			<b>\$ 234,453</b>	<b>\$ 208,738</b>	<b>\$ (25,715)</b>	<b>112%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2015</b>			<b>\$ 278,177</b>	<b>\$ 276,758</b>	<b>\$ (1,419)</b>	<b>101%</b>

2

2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099232	Vehicle Replacements > 120,000 miles	\$ 41,521	\$ 41,521	\$ -	100%
2	RDV0900	Meter Replacement Program	\$ 17	\$ 10,125	\$ 10,108	0%
<b>Specifics Total</b>			<b>\$ 41,538</b>	<b>\$ 51,646</b>	<b>\$ 10,108</b>	<b>80%</b>
<b>Non-Specifics Total</b>			<b>\$ -</b>	<b>\$ 248,900</b>	<b>\$ 248,900</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2016</b>			<b>\$ 41,538</b>	<b>\$ 300,546</b>	<b>\$ 259,008</b>	<b>14%</b>

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<sup>187</sup> In 2015, CWS spent \$38,917, \$134,276, and \$61,259 using non-specific funding for the Unified, Coast Springs, and Lucerne subareas, respectively.

2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00099234	Vehicle Replacements > 120,000 miles	\$ 42,559	\$ 42,559	\$ -	100%
2	RDV0900	Meter Replacement Program	\$ 17	\$ 10,378	\$ 10,361	0%
<b>Specifics Total</b>			<b>\$ 42,576</b>	<b>\$ 52,937</b>	<b>\$ 10,361</b>	<b>80%</b>
<b>Non-Specifics Total</b>			<b>\$ -</b>	<b>\$ 254,800</b>	<b>\$ 254,800</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 42,576</b>	<b>\$ 307,737</b>	<b>\$ 265,161</b>	<b>14%</b>

2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	12345	Vehicle Replacements > 120,000 miles	\$ 43,623	\$ 43,623	\$ -	100%
2	12346	Meter Replacement Program	\$ 18	\$ 10,638	\$ 10,620	0%
<b>Specifics Total</b>			<b>\$ 43,641</b>	<b>\$ 54,261</b>	<b>\$ 10,620</b>	<b>80%</b>
<b>Non-Specifics Total</b>			<b>\$ -</b>	<b>\$ 260,400</b>	<b>\$ 260,400</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 43,641</b>	<b>\$ 314,661</b>	<b>\$ 271,020</b>	<b>14%</b>

### C. DISCUSSION

The Redwood Valley District recorded \$615,052 per year in average gross plant additions for the most recent six-year period (2009-2014).<sup>188</sup> **Tables 5-I, 5-J, 5-K, and 5-L** compare CWS's and ORA's estimates against recorded annual average gross plant additions for the Unified subarea, Coast Springs subarea, Lucerne subarea, and Redwood Valley (general), respectively.

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<sup>188</sup> Gross plant additions include company funded plant additions as well as contributions and advance deposits for specific plant.

**Table 5-I: Capital Budget Proposals vs. Recorded Expenditures– Unified Subarea**

Unified (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
2009-2014 Recorded	--	--	--	--	\$ 208.4	100%
ORA	\$ -	\$ 62.4	\$ 27.8	\$ 47.5	\$ 34.4	17%
CWS	\$ 196.7	\$ 426.0	\$ 400.5	\$ 429.5	\$ 363.2	174%

**Table 5-J: Capital Budget Proposals vs. Recorded Expenditures– Coast Springs Subarea**

<b>Coast Springs (\$000)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Annual Average</b>	<b>% of Recorded</b>
<b>2009-2014 Recorded</b>	--	--	--	--	\$ 62.2	100%
<b>ORA</b>	\$ 13.0	\$ 118.4	\$ 87.8	\$ 89.8	\$ 77.3	124%
<b>CWS</b>	\$ 42.0	\$ 213.6	\$ 179.9	\$ 184.4	\$ 155.0	249%

**Table 5-K: Capital Budget Proposals vs. Recorded Expenditures— Lucerne Subarea**

Lucerne (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
2009-2014 Recorded	--	--	--	--	\$ 312.9	100%
ORA	\$ -	\$ 156.5	\$ 88.7	\$ 74.3	\$ 79.9	26%
CWS	\$ 257.9	\$ 705.1	\$ 442.7	\$ 437.4	\$ 460.8	147%

**Table 5-L: Capital Budget Proposals vs. Recorded Expenditures– Redwood Valley (General) District**

<b>Redwood Valley (\$000)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>Annual Average</b>	<b>% of Recorded</b>
<b>2009-2014 Recorded</b>	--	--	--	--	\$ 31.5	100%
<b>ORA</b>	\$ 278.2	\$ 41.5	\$ 42.6	\$ 43.6	\$ 101.5	322%
<b>CWS</b>	\$ 276.8	\$ 300.5	\$ 307.7	\$ 314.7	\$ 299.9	952%

ORA presents its analyses and recommended adjustments to CWS's requested capital budget for specific projects (Section 1), 2016-2018 Non-Specific projects (Section 2), and 2015 Budget (Section 3) below.

## 1. Specific Projects

In this rate case, the majority of CWS’s request consists of pipeline replacement based on a replacement rate as a percentage of the total amount of main in the system. In addition, CWS is also requesting membrane replacement, maintenance/modifications to existing tanks, and infrastructure.

### *a. Pipeline replacement (PIDs 99373, 99375, 99376, 99358, 99362, 99363, 99355, 99356 and 99357)*

CWS requests approximately \$390,709, \$400,477, and \$410,489 to replace 1,409 feet of pipeline per year between 2016 and 2018, respectively for the Unified subarea. CWS requests approximately \$175,528, \$179,916, and \$184,414 to replace 633 feet of pipeline per year between 2016 and 2018, respectively for the Coast Springs subarea. CWS requests approximately \$414,002, \$424,353, and \$434,961 to replace 1,493 feet of pipeline per year between 2016 and 2018, respectively for the Lucerne subarea. ORA evaluated the leak rate, water loss, system age, results of American Water Works Association’s (“AWWA”) recommended pipeline replacement model, historical replacement rate, and replacement cost for each district and provided a detailed evaluation of CWS’s pipeline replacement proposal in ORA’s Common Plant Issues Testimony (see ORA’s Report on Plant– Common Issues). **Table 5-M** below shows ORA’s recommendations for pipeline replacement and the associated budgets in this district.<sup>189</sup>

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<sup>189</sup> CWS request results in a replacement rate of 2.67%, 3.30%, and 1.39% for the Unified, Coast Springs, and Lucerne subareas, respectively.



**Table 5-M: Pipeline Replacement Program Budget– Redwood Valley District**

Unified		ORA's Recommendation		CWS's Proposal	
YEAR	PID	Length (ft)	Budget	Length (ft)	Budget
2016	00099373	110	\$ 27,120	1,409	\$ 390,709
2017	00099375	110	\$ 27,760	1,409	\$ 400,477
2018	00099376	110	\$ 28,393	1,409	\$ 410,489
Coast Springs		ORA's Recommendation		CWS's Proposal	
YEAR	PID	Length (ft)	Budget	Length (ft)	Budget
2016	00099358	348	\$ 85,799	633	\$ 175,528
2017	00099362	348	\$ 87,824	633	\$ 179,916
2018	00099363	348	\$ 89,826	633	\$ 184,414
Lucerne		ORA's Recommendation		CWS's Proposal	
YEAR	PID	Length (ft)	Budget	Length (ft)	Budget
2016	00099355	288	\$ 71,006	1,493	\$ 414,002
2017	00099356	288	\$ 72,682	1,493	\$ 424,353
2018	00099357	288	\$ 74,339	1,493	\$ 434,961
Total		ORA's Recommendation		CWS's Proposal	
YEAR		Length (ft)	Budget	Length (ft)	Budget
2016		746	\$ 183,925	3,535	\$ 980,239
2017		746	\$ 188,266	3,535	\$ 1,004,746
2018		746	\$ 192,558	3,535	\$ 1,029,864

***b. Membrane replacement (PIDs 98552, 98422, and 98459)***

CWS requests \$6,978 in 2016 for the Unified subarea (PID 98552), \$25,370 in 2016 for the Coast Springs subarea (PID 98422), and \$198,582 in 2016 for the Lucerne subarea (PID 98459) to replace membrane filters at its water treatment plants. In the Unified subarea, the replacement rate of the membranes is based on a historical operational life of

1 3 years for Zenon filters. For the Coast Springs and Lucerne subareas, CWS requests to  
2 replace the PALL membranes at the treatment plants at Stations 7 and 1, respectively  
3 because the membranes have reached the end of their service life.<sup>190</sup> ORA does not  
4 oppose the need for the replacement projects, but recommends the PALL membranes in  
5 the Lucerne subarea be treated as inventory under materials and supplies.

6 CWS intends on purchasing the PALL membranes and replacing them once the  
7 membranes fail. The membranes would be required to be stored until the membranes are  
8 replaced.<sup>191</sup> In the Lucerne subarea, the current membranes at the Lucerne Station 1  
9 treatment plant are the original membranes from the treatment plant.<sup>192</sup> CWS based the  
10 expected service life of ten years based on the service life of the PALL membranes in  
11 service in the Bakersfield district. If CWS were to record the cost of the PALL  
12 membranes as a plant addition, there would be corresponding depreciation expense  
13 associated with the project, then the project would be collecting a depreciation expense  
14 while it is not being used, resulting in two depreciation charges for the membranes that  
15 are still in use and the membranes that are not in use. If the existing membranes were to  
16 be in service beyond the expected replacement date of 2016, the amount of double  
17 charging would be substantial. Membranes that are not in service and providing a benefit  
18 to the ratepayers should not be recorded in plant in-service earning a return with  
19 depreciation expense being recovered in rates. If the membranes were to be treated as  
20 inventory under material and supply, it would be part of rate base but would not be  
21 depreciated until it is in service and booked into plant. For the reasons mentioned above,

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<sup>190</sup> In the Coast Springs subarea, CWS is requesting to replace six PALL membranes. In the Lucerne subarea, CWS is requesting to replace 48 PALL membranes.

<sup>191</sup> In Lucerne, part of the cost of the project is allocated to rent storage to store the membranes until they are replaced.

<sup>192</sup> CWS Project Justification Report, page RDV PJ – 220, Lines 21 to 22.

1 ORA recommends the PALL membranes in the Lucerne subarea be treated as inventory  
2 under materials and supplies.

3 *c. Replace roof at Well 4 shed (PID 98555)*

4 CWS requests \$5,421 in 2016 to replace the roof at the Well 4 shed in the Coast Springs  
5 subarea due to the existing condition of the roof. According to CWS, the roof at the Well  
6 4 shed was replaced on May 29, 2015 as a non-specific project. CWS replaced the roof  
7 because the roof was damaged during the storms of December 2014 and February  
8 2015.<sup>193</sup> ORA received confirmation from CWS that the company's request for PID  
9 98555 is being canceled.<sup>194</sup> ORA recommends removing the cost of the project from  
10 2016 forecasts since the project is already completed as a 2015 non-specific project.

11 *d. Overflow airgap retrofit, install new safety climb rail, and remove exterior*  
12 *ladder cage (PID 98482)*

13 CWS requests \$25,183 in 2016 to retrofit the overflow airgap, install new safety climb  
14 rail, and remove the exterior ladder cage for the Station 4 Riviera Tank in the Lucerne  
15 subarea. The scope of the project is based on the recommendations from the most recent  
16 tank inspection report.<sup>195</sup> ORA does not object to the need for the project, but  
17 recommends a lower budget since the air gap retrofit component of the project was  
18 already completed. According to CWS, the overflow air gap was completed in July

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<sup>193</sup> CWS Response to ORA Data Request JMI-007, Q. 2.a&b. The contractor cost for the Well 4 roof was \$7,520.

<sup>194</sup> Ibid, Q. 2.c.

<sup>195</sup> The most recent tank inspection report for Lucerne Station 4- Tank 1 was dated October 18, 2013.

2013.<sup>196</sup> CWS submitted to ORA a revised cost estimate for PID 98482 based on the remaining scope of work that needs to be completed.<sup>197</sup> ORA adjusts the budget to reflect the revised cost for PID 98482 of \$20,453.

*e. Meter replacement program (PIDs RDV0900 and LUC0900)*

*i. Meter replacement program (PID RDV0900)*

**Table 5-N** below lists CWS's requests and ORA's recommendation on the replacement budget of small and large meters in the Redwood Valley district. ORA's recommended budgets are based on detailed analysis and recommendation in its Report on Plant–Common Issues.

**Table 5-N: Meter Replacement Budgets – Redwood Valley District**

District:		Redwood Valley	
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	RDV0900	\$ 17	\$ 10,125
2017	RDV0900	\$ 17	\$ 10,378
2018	RDV0900	\$ 18	\$ 10,638

*ii. Lucerne meter replacement program (PID LUC0900)*

CWS requests \$2,326, \$2,384, and \$2,444 in 2016-2018 to replace meters in the Lucerne subarea. In this rate case, CWS intends on making three separate accounts for the meter replacement projects for the three subareas (PIDs UN0900, CSP0900, and LUC0900 for the Unified, Coast Springs, and Lucerne subareas, respectively). CWS states that going forward, they intend on making three separate accounts for the three subareas. ORA does

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<sup>196</sup> CWS Response to ORA Data Request JMI-007, Q. 3.a.

<sup>197</sup> Ibid, Q. 3.b.

1 not oppose the idea behind allocating the meter replacement into the three separate  
2 projects. However in the workpapers, CWS is requesting funding for both the district-  
3 wide meter replacement and meter replacement for the Lucerne subarea.<sup>198</sup> If CWS  
4 intends on separating funding for the subareas, then the company should either receive  
5 funding for meter replacement district-wide or by individual subarea but not both. ORA  
6 removed the cost of LUC0900 from the workpapers. For this rate case, CWS should  
7 allocate the district meter replacement budget (PID RDV 0900) to the individual subarea  
8 meter replacement projects where the company feels appropriate.

## 9 **2. Non-Specific Budgets for 2016-2018**

10 CWS requests approximately \$764,100 in the Non-specific Budget to address unforeseen,  
11 unplanned, emergency projects, and regulatory compliant projects. ORA's Report on  
12 Plant – Common Issues provides the basis for its recommendations for this budget.

## 13 **3. 2015 Capital Budget**

14 CWS requests approximately \$973,044 for plant additions in 2015, which consists of  
15 projects authorized for 2015 in the last GRCs.<sup>199</sup> ORA's Report on Plant – Common  
16 Issues presents its analysis and basis for adjusting the 2015 capital additions for Redwood  
17 Valley.

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<sup>198</sup> In this rate case, CWS only requested funding for the Lucerne subarea and not for the Unified and Coast Springs subareas.

<sup>199</sup> \$194,136.93 2015 Proposed for the Unified subarea + \$27,640 2015 Proposed for the Coast Springs subarea + \$474,508.51 2015 Proposed for the Lucerne subarea + \$276,758.20 2015 Proposed for the Redwood Valley (General) = \$973,043.64 2015 Proposed Redwood Valley (Total). Proposed values taken from the Unified Discovery 2015 workpaper, WP8B2 tab, Coast Springs Discovery 2015 workpaper, WP8B2 tab, Lucerne Discovery 2015 workpaper, WP8B2 tab, and Redwood Valley Discovery 2015 workpaper, WP8B2 tab for the 2015 proposed Unified, Coast Springs, Lucerne, and Redwood Valley (General) values, respectively.

1        **D. CONCLUSION**

2        ORA's recommendations presented above have been incorporated in the calculations for  
3        estimated Plant in Service as shown in Table 7-1 in its Company-wide Report, Appendix  
4        RO.

## Chapter 6: Plant – Stockton

### A. INTRODUCTION

This chapter presents ORA’s analyses and recommendations for Plant in Service for CWS’s Stockton District. ORA reviewed and analyzed CWS’s testimony, application, Minimum Data Requirements, work papers, capital project details, estimating methods, and response to various ORA data request. ORA also conducted a field investigation on September 15, 2015 of some of the proposed specific plant additions before making its own independent estimates including adjustments where appropriate.

### B. SUMMARY OF RECOMMENDATIONS

Based on ORA’s review and analysis of CWS’s requested plant additions, ORA recommends disallowance, adjustment, deferral or Advice Letter treatment where appropriate. These recommendations form the basis of ORA’s recommended capital budget summary presented in **Table 6-A** below. ORA’s estimated plant additions also reflect recommendations in its Report on Plant– Common Issues regarding pipeline replacement, vehicle replacement, Supervisory Control and Data Acquisition (“SCADA”) software and hardware replacement, meter replacement, non-specific budget, and 2015 recorded plant. **Table 6-B** presents ORA project-specific adjustments.

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**Table 6-A: Capital Budget Summary – Stockton District**

Stockton (\$000)	2015	2016	2017	2018	Annual Average
<b>ORA</b>	\$ 6,517.3	\$ 4,203.0	\$ 3,072.4	\$ 3,366.8	\$ 4,289.9
<b>CWS</b>	\$ 9,625.7	\$ 27,306.7	\$ 31,015.8	\$ 33,010.6	\$ 25,239.7
<b>CWS &gt; ORA</b>	\$ 3,108.4	\$ 23,103.6	\$ 27,943.4	\$ 29,643.8	\$ 20,949.8
<b>ORA as % of CWS</b>	68%	15%	10%	10%	26%

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**Table 6-B: Capital Budget Details – Stockton District**

2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00061732	Replace Pump, Motor, & Column - Sta. 35-01	\$ -	\$ 112,069	\$ 112,069	0%
2	00063153	Convert Chlorination - Sta. 71-01	\$ -	\$ 60,000	\$ 60,000	0%
3	00063236	Replace Flow Meter - Sta. 61	\$ -	\$ 24,000	\$ 24,000	0%
4	00063260	Replace Air Release Valves - Sta. 35-01, 70-01, 75-01 and 78-01.	\$ -	\$ 30,000	\$ 30,000	0%
5	00063554	Van Buren Street - Worth to Anderson Street. Install 330' of 8" PVC C-900 pipe in Van Buren Street from Worth Street to Anderson Street. Retire 330' of 2" Wrought Iron pipe in same.	\$ -	\$ 39,062	\$ 39,062	0%
6	00063575	Carpenter Road - Airport Way Frontage Road to Bellevue Avenue - 1,150' 8" PVC Retire 1,150' of 6" Steel pipe in same. Phelps St., Volney St. and Bellevue Ave. from Ralph Ave.	\$ 855,153	\$ 486,155	\$ (368,999)	176%
7	00063655	Walnut Street - Pacific Ave. to Hunter St.; Elm St. - Pacific Ave. to Commerce St. - 1,940' 6" PVC Walnut St. from Pacific Ave. to Hunter St. and 460' of 6" PVC Elm St. from Pacific Ave. to Commerce St.	\$ -	\$ 383,890	\$ 383,890	0%

4



2015	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
8	00063715	Chronicle Avenue - Waterloo Road to Harding Way - 1,980' 6" PVC Retire 1,980' 4" Steel pipe in same. Retire 180' 2" C.I. pipe - John	\$ -	\$ 243,226	\$ 243,226	0%
9	00063752	Bishop Street - Funston Avenue to Sanguinetti Lane; Hiawatha Avenue - Bishop Street to Bradford Street - 1,700' 8" PVC in Bishop St. from Funston Ave. to Sanguinetti Lane. Retire 940' of 2" C.I. pipe and 760' of 4" Steel pipe in same. Install: 350' 6"	\$ -	\$ 224,872	\$ 224,872	0%
10	00063795	Woodland Drive - West from Pershing Avenue - 1,800' 8" PVC Retire 1,800' of 8" Steel pipe in same.	\$ -	\$ 203,992	\$ 203,992	0%
11	00063800	Twelfth Street - "B" Street to Bieghle Street - 1,140' 6" PVC Retire 1,070' of 6" Steel and 70' of 4" Steel pipe in same.	\$ -	\$ 127,281	\$ 127,281	0%
12	00063801	Washington Street - 1,040' 8" PVC Retire 760' of 4" C.I. pipe and	\$ -	\$ 181,359	\$ 181,359	0%
13	00063802	Francis Street - 300' 6" PVC.	\$ -	\$ 39,432	\$ 39,432	0%
14	00063873	Replace Panelboard - Sta. 16	\$ -	\$ 194,794	\$ 194,794	0%
15	00063936	Panelboard Replacement - Sta. 61	\$ -	\$ 313,308	\$ 313,308	0%
16	00064335	Replace 4 Sample Stations	\$ 29,181	\$ 46,589	\$ 17,408	63%
17	00064934	Vehicle - 0.5 Ton Pick Up with Accessories - LOC/INSPEC	\$ -	\$ 42,000	\$ 42,000	0%
18	STK0900	Meter Replacement Program	\$ -	\$ 259,788	\$ 259,788	0%
<b>Specifics Total</b>			<b>\$ 884,334</b>	<b>\$ 3,011,815</b>	<b>\$ 2,127,481</b>	<b>29%</b>
<b>Non-Specifics</b>			<b>\$ 504,820</b>	<b>\$ 1,164,050</b>	<b>\$ 659,230</b>	<b>43%</b>
<b>Carry-Overs Total</b>			<b>\$ 5,128,172</b>	<b>\$ 5,449,872</b>	<b>\$ 321,700</b>	<b>94%</b>
<b>TOTAL 2015</b>			<b>\$ 6,517,326</b>	<b>\$ 9,625,737</b>	<b>\$ 3,108,411</b>	<b>68%</b>

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2016	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097664	Upgrade CP System at Stockton Tanks: 3-T4, 32-T3	\$ 18,670	\$ 37,340	\$ 18,670	50%
2	00098194	Hydrant Meter Reduced Pressure Principal Assembly	\$ 44,745	\$ 44,745	\$ -	100%
3	00098353	Install new Panelboard and retire existing at Stn 35	\$ -	\$ 256,144	\$ 256,144	0%
4	00098624	Install Back up Generator sta 79 Stockton	\$ 251,628	\$ 251,628	\$ -	100%
5	00098625	Install Back up Generator sta 66 Stockton	\$ 282,906	\$ 282,906	\$ -	100%
6	00098900	Station 59-01 New Well Blow-Off to storm drain	\$ 62,119	\$ 62,119	\$ -	100%
7	00098953	Install 4 flow meters. Locations TBD	\$ 44,250	\$ 177,000	\$ 132,750	25%
8	00099250	Vehicle Replacements > 120,000 miles	\$ 162,805	\$ 162,805	\$ -	100%
9	00099326	Connection of FE/Mn Treatment system backwash tank to sanitary sewer instead of reclaim to distribution system due to TSS and turbidity.	\$ 70,202	\$ 70,202	\$ -	100%
10	00099361	Connection of FE/Mn Treatment system backwash tank at Sta. 36 to sanitary sewer instead of reclaim to distribution system due to TSS and turbidity.	\$ 77,656	\$ 77,656	\$ -	100%
11	00099365	Connection of FE/Mn Treatment system backwash tank at Sta. 61 to sanitary sewer instead of reclaim to distribution system due to TSS and turbidity.	\$ 73,929	\$ 73,929	\$ -	100%
12	00100703	Replace V200091 due to high repair costs	\$ 125,655	\$ 125,655	\$ -	100%
13	00099368	The 2016 main replacement program will replace 87,520 feet of pipelines in the Stockton district at an estimated cost of \$183 per foot.	\$ 2,547,257	\$ 23,877,482	\$ 21,330,225	11%
14	STK0900	Meter Replacement Program	\$ 229,983	\$ 295,599	\$ 65,616	78%
<b>Specifics Total</b>			<b>\$ 3,991,804</b>	<b>\$ 25,795,209</b>	<b>\$ 21,803,405</b>	<b>15%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,289,400</b>	<b>\$ 1,289,400</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ 211,234</b>	<b>\$ 222,055</b>	<b>\$ 10,821</b>	<b>95%</b>
<b>TOTAL 2016</b>			<b>\$ 4,203,039</b>	<b>\$ 27,306,664</b>	<b>\$ 23,103,626</b>	<b>15%</b>

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2017	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097666	Upgrade CP System at Stockton Tanks: 81-T2, 82-T7	\$ 38,273	\$ 38,273	\$ -	100%
2	00098369	Install new Panelboard and retire existing at Sta. 7	\$ -	\$ 263,398	\$ 263,398	0%
3	00098908	Station 60-01 New Well Blow-Off to storm drain	\$ 63,672	\$ 63,672	\$ -	100%
4	00099251	Vehicle Replacements > 120,000 miles	\$ 127,676	\$ 207,194	\$ 79,518	62%
5	00100140	2.0 Million Gallon centralized storage tank and booster station to replace the storage within the elevated tanks at Sta 82 - T7, Sta 81 - T2, Sta 83 - T6, Sta 3 - T4 that will be removed.	\$ -	\$ 4,346,144	\$ 4,346,144	0%
6	00099370	The 2017 main replacement program will replace 87,520 feet of pipelines in the Stockton district at an estimated cost of \$183 per foot.	\$ 2,607,372	\$ 24,474,419	\$ 21,867,047	11%
7	STK0900	Meter Replacement Program	\$ 235,410	\$ 302,989	\$ 67,579	78%
<b>Specifics Total</b>			<b>\$ 3,072,404</b>	<b>\$ 29,696,090</b>	<b>\$ 26,623,686</b>	<b>10%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,319,700</b>	<b>\$ 1,319,700</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2017</b>			<b>\$ 3,072,404</b>	<b>\$ 31,015,790</b>	<b>\$ 27,943,386</b>	<b>10%</b>

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2018	Project #	Project Description	ORA	CWS	CWS > ORA	ORA / CWS
1	00097667	Upgrade CP System at Stockton Tanks: 83-T6, 84-T1	\$ 39,230	\$ 39,230	\$ -	100%
2	00098370	Install new Panelboard and retire existing at Stn 16	\$ -	\$ 262,698	\$ 262,698	0%
3	00098911	Station 63-01 New Well Blow-Off to storm drain	\$ 65,264	\$ 65,264	\$ -	100%
4	00098954	Install 4 flow meters. Locations TBD	\$ 92,980	\$ 185,960	\$ 92,980	50%
5	00099178	Replace the SCADA system server and software. This is a the district portion of a combined project to replace all of the SCADA system software and hardware throughout Cal Water.	\$ -	\$ 753,399	\$ 753,399	0%
6	00099252	Vehicle Replacements > 120,000 miles	\$ 261,736	\$ 261,736	\$ -	100%
7	00101020	500,000 gallon storage tank and booster station to replace the elevated storage tank at STK Sta 84 - T3 that will be removed due to risk of catastrophic failure.	\$ -	\$ 2,347,791	\$ 2,347,791	0%
8	00101039	500,000 gallon storage tank and booster station to replace the elevated storage tank at STK Sta 18- T5 that will be removed due to risk of catastrophic failure.	\$ -	\$ 2,347,791	\$ 2,347,791	0%
9	00099372	The 2018 main replacement program will replace 87,520 feet of pipelines in the Stockton district at an estimated cost of \$183 per foot.	\$ 2,666,820	\$ 25,086,279	\$ 22,419,459	11%
10	STK0900	Meter Replacement Program	\$ 240,778	\$ 310,565	\$ 69,787	78%
<b>Specifics Total</b>			<b>\$ 3,366,809</b>	<b>\$ 31,660,715</b>	<b>\$ 28,293,906</b>	<b>11%</b>
<b>Non-Specifics</b>			<b>\$ -</b>	<b>\$ 1,349,900</b>	<b>\$ 1,349,900</b>	<b>0%</b>
<b>Carry-Overs Total</b>			<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>n/a</b>
<b>TOTAL 2018</b>			<b>\$ 3,366,809</b>	<b>\$ 33,010,615</b>	<b>\$ 29,643,806</b>	<b>10%</b>

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## C. DISCUSSION

The Stockton District recorded \$6,547,530 per year in average gross plant additions for the most recent six-year period (2009-2014).<sup>200</sup> **Table 6-C** compares CWS's and ORA's estimates against recorded annual average gross plant additions.

**Table 6-C: Capital Budget Proposals vs. Recorded Expenditures– Stockton District**

Stockton (\$000)	2015	2016	2017	2018	Annual Average	% of Recorded
2009-2014 Recorded	--	--	--	--	\$ 6,547.5	100%
ORA	\$ 6,517.3	\$ 4,203.0	\$ 3,072.4	\$ 3,366.8	\$ 4,289.9	66%
CWS	\$ 9,625.7	\$ 27,306.7	\$ 31,015.8	\$ 33,010.6	\$ 25,239.7	385%

ORA presents its analyses and recommended adjustments to CWS's requested capital budget for specific projects (Section 1), 2016-2018 non-specific projects (Section 2), carry-overs (Section 3), and 2015 budget (Section 4) below.

### 1. Specific Projects

#### *a. Pipeline replacement (PIDs 99368, 99370, and 99372)*

CWS requests approximately \$23,877,482, \$24,474,419, and \$25,086,279 to replace 87,520 feet of pipeline per year between 2016 and 2018, respectively.<sup>201</sup> ORA evaluated the leak rate, water loss, system age, results of American Water Works Association's ("AWWA") recommended pipeline replacement model, historical replacement rate, and replacement cost for each district and provided a detailed evaluation of CWS's pipeline

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<sup>200</sup> Gross plant additions include company funded plant additions as well as contributions and advance deposits for specific plant.

<sup>201</sup> Over 70% of CWS forecasted specific capital budget (2016-2018) is for pipeline replacement (approximately 92.57%, 82.42%, and 79.23% in 2016-2018, respectively).

replacement proposal in ORA's Report on Plant –Common Issues. **Table 6-D** below shows ORA's recommendations for pipeline replacement and the associated budgets in the Stockton district.<sup>202</sup>

**Table 6-D: Pipeline Replacement Program Budget– Stockton District<sup>203</sup>**

YEAR	PID	ORA's Recommendation		CWS's Proposal	
		Length (ft)	Budget	Length (ft)	Budget
2016	00099368	15,891	\$ 2,547,257	87,520	\$ 23,877,482
2017	00099370	15,891	\$ 2,607,372	87,520	\$ 24,474,419
2018	00099372	15,891	\$ 2,666,820	87,520	\$ 25,086,279

***b. Elevated tank replacement (PIDs 100140, 101020, and 101039)***

CWS requests to replace the existing elevated tanks with three centralized storage tanks. **Table 6-E** shows CWS's request for replacement of the six elevated tanks.

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<sup>202</sup> CWS request results in an annual replacement rate of 3.14% in the Stockton district.

<sup>203</sup> Over the past six years (2009-2014), CWS replaced approximately a total of 99,214 feet of main (46,373, 17,275, 9,342, 8,438, 9,312, and 8,474 in 2009-2014, respectively. During those six years, CWS spent \$2,708,238 in 2009, \$2,626,789 in 2010, \$1,056,306 in 2011, \$1,148,346 in 2012, \$1,339,303 in 2013, and \$1,945,606 in 2014. CWS provided the recorded 2009-2014 annual expenditure for pipeline replacement and amount of main replaced was provided in response to data request JA-003, Q. 1.

**Table 6-E: Storage Tank Replacement Budget– Stockton District<sup>204</sup>**

Year	PID	Storage Volume (MG)	Replaces Tanks	Project Cost
2017	00100140	2	St. 82-T7, St. 81-T2, St. 83-T6, St. 3-T4	\$ 4,346,144
2018	00101020	0.5	St. 84-T3	\$ 2,347,791
2018	00101039	0.5	St. 18-T5	\$ 2,347,791

According to CWS, replacing the existing elevated tanks was a more cost effective alternative than seismically retrofitting the existing elevated tanks.<sup>205</sup> During the 2012 rate case, CWS planned to replace two elevated tanks in every rate case. In the 2012 rate case, CWS proposed two projects to seismically retrofit the elevated tanks at Station 3 (Tank 4) and at Station 84 (Tank 3) (PIDs 79414 and 79416, respectively). During settlement, the parties agreed to the projects as advice letter projects.<sup>206</sup> CWS decided to cancel the advice letter projects since the company believes that it is more cost effective to replace the tanks rather than seismically retrofitting the existing tanks. In this rate

<sup>204</sup> The costs of the project include booster pump buildings, booster pumps, panelboard, generator, surge tank, piping, and all necessary electrical and SCADA necessary. According to CWS, the total estimated cost to retrofit all of the existing tanks is \$16,386,114. CWS estimates the total proposed cost to replace the existing elevated tanks with centralized and satellite storage (with pump stations) is \$9,041,726.

<sup>205</sup> In the last rate case (A.12-07-007), CWS requested to seismically retrofit the elevated tanks Station 84-Tank 3, and Station 3- Tank 4. In settlement, the parties agreed to these projects as advice letter projects. During the design of the projects, it was determined it was more cost effective to replace the tanks than to seismically retrofit the existing tanks. CWS cancelled the advice letter projects and proposed to replace the aforementioned tanks in this rate case. Some of the issues concerning seismically retrofitting the existing tanks include (but not limited to)

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CONFIDENTIAL \*\*\*

<sup>206</sup> Decision (D). 14-08-011, Exhibit A, pg. 349.

1 case, the company is requesting to replace all six elevated tanks. Even though the parties  
2 previously agreed to PIDs 79414 and 79416 as advice letter projects, CWS changed the  
3 scope of the projects. Therefore, ORA reviewed whether replacing all of the elevated  
4 tanks are necessary at this time. ORA does not agree with replacing all of the elevated  
5 tanks in this rate case. In the last rate case, CWS conducted an assessment of the  
6 elevated tanks in the Chico and Stockton districts.<sup>207</sup> In the report, MMI Engineering  
7 Incorporated prepared for CWS an assessment of the existing elevated tanks in the  
8 Stockton (and Chico) district and made the following conclusions:

9 *8.2 Seismic Hazards*<sup>208</sup>

10 *The non-seismic hazards at the tower sites are summarized below:*

- 11 • *Strong ground shaking: The tank sites are located at significant distance from*  
12 *major active faults and the ground shaking hazard is considered moderate.*  
13 *[The peak ground acceleration (“PGA”) values for 10% and 2% in 50 years*  
14 *exceedance probabilities] for Stockton tanks are 0.17g and 0.3g.*
- 15 • *Moderate liquefaction potential exists at* \*\*\*BEGIN CONFIDENTIAL\*\*\*  
16  \*\*\*END  
17 CONFIDENTIAL\*\*\*
- 18 • *Lateral spread hazard of all tank sites is judged to be low*
- 19 • *Seismic ground shaking for the site is expected to be minimal; therefore*  
20 *tectonic subsidence hazard is minimal.*

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<sup>207</sup> The report was prepared by MMI Engineering Incorporated.

<sup>208</sup> Seismic Assessment of Elevated Tanks Report for the Stockton District, prepared for Stockton and Chico districts prepared by MMI Engineering, Incorporated, page 1-23.



- 1           • *None of the towers are located within an Alquist –Priolo zone or on an active*  
2           *fault; therefore, the potential for damage at each of the tower locations due to*  
3           *fault rupture is unlikely.*

4 From the report, there appears to be minimal seismic activity at these sites. Therefore, it  
5 is not necessary to replace all of the elevated tanks in this rate case. In addition, CWS is  
6 in the process of completing another report based on mitigating the risk of the existing  
7 elevated tanks.<sup>209</sup> The scope of the new study is to perform hazard assessment and finite  
8 element modeling of tanks during a seismic event, identifying structural deficiencies of  
9 each member, likelihood of the modes of failure, assessment management, and risk  
10 mitigation.<sup>210</sup> The company's internal review of the elevated tanks is still in progress. <sup>211</sup>  
11 CWS did provide ORA an excerpt of the report the company is preparing in response to  
12 data request JMI-005. \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED]

13 [REDACTED]  
14 [REDACTED]  
15 [REDACTED]  
16 [REDACTED] \*\*\*END CONFIDENTIAL\*\*\* Since the  
17 full report was not available for ORA to review it is not reasonable at this time to  
18 prematurely replace all of the elevated tanks in this rate case. \*\*\*BEGIN

19 CONFIDENTIAL\*\*\* [REDACTED]  
20 [REDACTED]

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<sup>209</sup> The report is recorded as a 2013 non-specific project (PID 85977).

<sup>210</sup> CWS Response to ORA Data Request JMI-005, Q. 1.a.

<sup>211</sup> Ibid.

1 [REDACTED]<sup>212</sup> \*\*\*END CONFIDENTIAL\*\*\* The report should be  
2 completed prior to determine the most appropriate method to address the seismic  
3 concerns with the elevated tanks. For the reasons mentioned above, ORA recommends  
4 deferring PIDs 100140, 101020, and 101039 to a future rate case.

5 *c. Panelboard replacement (PIDs 98353, 98369, and 98370)*

6 CWS requests \$256,144, \$263,398, and \$262,698 in 2016-2018, respectively to replace  
7 one panelboard per year due to the age and condition of the existing panelboards.<sup>213</sup> For  
8 the reasons presented in its Report on Plant – Common Issues, ORA recommends  
9 disallowing CWS’s requests.

10 In addition, CWS requested funding for the replacement of panelboards at Stations 7 and  
11 16 in the last rate case (A.12-07-007) and was approved (as PIDs 63436 and 63873  
12 respectively). These projects were scheduled to be placed in service in 2014 and 2015,  
13 respectively and funded in 2014 and 2015 rates accordingly.<sup>214</sup> According to CWS, PID  
14 63436 is currently in design and is expected to be placed into service by the summer of  
15 2016.<sup>215</sup> For PID 63873, CWS originally anticipates that the project will still be placed  
16 into service in 2015.<sup>216</sup> In this rate case, CWS requests \$263,398 in 2017 and \$262,698  
17 in 2018 to replace the panelboards at Stations 7 and 16, respectively (PIDs 98369 and

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<sup>212</sup> \*\*\*BEGIN CONFIDENTIAL\*\*\* [REDACTED]

\*\*\*END CONFIDENTIAL\*\*\*

<sup>213</sup> CWS requests to replace the panelboard at Stations 35 (PID 98353), 7 (PID 98369), and 16 (PID 98370), in 2016-2018, respectively.

<sup>214</sup> Refer to Section 3 of this chapter in regard to the project delays for PID 63436 and PID 63873.

<sup>215</sup> CWS Response to ORA Data Request JMI-005, Q. 2.b.ii.

<sup>216</sup> CWS Result of Operations Report- Stockton, page 33.

98370, respectively). Since the replacement of the panelboards at Station 7 and 16 are already in progress and scheduled to be completed, ORA removed CWS's redundant request in this rate case for the panelboard replacement projects (PIDs 98369 and 98370).

*d. Vehicle replacement (PIDs 99250, 99251, and 99252)*

CWS requests \$162,805, \$207,194, and \$261,736 in 2016-2018, to replace vehicles based on the mileage of the vehicle. CWS applies a 120,000-mile criterion to its vehicles regardless of the vehicle's gross vehicle rate weighting.<sup>217</sup> For the reasons presented in ORA's Report on Plant – Common Issues, one vehicle (vehicle V095002) did not meet the Department of General Services' ("DGS") criteria<sup>218</sup> and ORA removed the cost of the vehicle from the project. ORA recommends a budget of \$162,805, \$127,676, and \$261,736 for 2016-2018, respectively.

*e. Cathodic protection upgrade projects (PIDs 97664, 97666, and 97667)*

**Table 6-F** below shows CWS's request to upgrade the Cathodic Protection (CP) system to adjust the operating voltage necessary to maintain the optimum current output automatically for tanks at various sites.

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<sup>217</sup> CWS Project Justification Report, page STK PJ – 315, Lines 44 to 45.

<sup>218</sup> The DGS Vehicle Replacement Policy sets a replacement schedule criteria based on mileage and vehicle's gross vehicle weight rating ("GVWR").

**Table 6-F: CP Upgrade Budget– Stockton District**

Year	PID	Description	Project Cost
2016	00097664	Upgrade CP System at Stockton Tanks: 3-T4, 32-T3	\$ 37,340
2017	00097666	Upgrade CP System at Stockton Tanks: 81-T2, 82-T7	\$ 38,273
2018	00097667	Upgrade CP System at Stockton Tanks: 83-T6, 84-T1	\$ 39,230

ORA does not agree that the CP system needs to be replaced at Station 32, Tank 3 since it was already completed in 2015 under the adopted project from the last rate case (PID 60772).<sup>219</sup> ORA removed the cost of the redundant CP upgrade request from the estimated project cost. For tanks with a volume of 1.5 million gallons (“MG”) or less, CWS estimates the replacement cost based on a fix dollar cost average unit cost.<sup>220</sup> Since the aforementioned tanks are less than 1.5MG, ORA scaled the cost of the projects proportionally based on the number of CP projects being removed from the project costs since CWS uses the same unit cost for all the cathodic protection projects (subject to escalation).<sup>221</sup> ORA estimated the project cost for PID 97664 by dividing CWS’s proposed budget in half (since ORA is only allowing one of the two CP projects for PID 97664) to account for half of the proposed CP projects under PID 97664 that ORA finds

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<sup>219</sup> CWS Result of Operations Report- Stockton, page 35. PID 60772 was an adopted project from the previous rate case originally scheduled to be completed in 2014. CWS completed PID 60772 at a recorded cost of \$13,128.44.

<sup>220</sup> CWS Project Justification Report, page BAY PJ – 308. According to CWS, tanks with a storage volume less than 1.5 MG, the only variable costs related to CP replacement is due to the number of anodes needed (majority of the unit cost is due to fixed internal labor and contractor material costs). CWS acknowledges that some of the CP projects would be higher than the estimated average unit cost and some would result in a unit cost less than the average unit cost; however the overall CP unit cost would equal the average unit cost.

<sup>221</sup> The storage volume for Station 32, Tank 3 is 0.25 MG.

1 reasonable. ORA recommends a budget of \$18,670, \$38,273, and \$39,230 for PIDs  
2 97664, 97666, and 97667, respectively.

3 *f. Replace SCADA software and hardware (PID 99178)*

4 CWS requests \$753,399, in 2018 to replace the SCADA hardware and software due to  
5 age (will no longer be supported) and reconfigure the protocol in which data is collected  
6 in the district. CWS proposes to install automatic pump controls at each station to  
7 connect directly with the SCADA at the district operations center. This project is part of  
8 a larger overall project that is proposed in multiple districts for the SCADA Master Plan.  
9 For the reasons identified in ORA's Report on Plant – Common Issues on SCADA, ORA  
10 recommends the Commission disallow this project.

11 *g. Flow meter and vault replacement (PIDs 98953 and 98954)*

12 CWS requests \$177,000 in 2016 (PID 98953) and \$185,960 in 2018 (PID 98954) to  
13 replace four existing flow meters annually where the mechanical bearings are worn and  
14 need to be replaced.<sup>222</sup> ORA does not agree with the need to replace the flow meters at  
15 Stations 63, 71, and one flow meter at Station 66 for PID 98953. In addition, ORA does  
16 not agree with the need to replace the flow meters at Stations 59 and 68 for PID 98954.

17 ORA requested from CWS the maintenance records regarding the flow meters from the  
18 past six years (2009-2014).<sup>223</sup> Refer to ORA's Report on Plant – Common Issues  
19 regarding ORA's methodology for evaluating the flow meter replacement projects. For

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<sup>222</sup> CWS Response to ORA Data Request JMI-005, Q. 4. According to CWS, the company is proposing to replace two flow meters at Station 66, and one flow meter at Stations 63 and 71 for PID 98953. In addition, CWS is proposing to replace one flow meter at Stations 18, 35, 59, and 68 for PID 98954.

<sup>223</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i.

1 the flow meters associated with PID 98953, the majority of the maintenance for the flow  
2 meters during the 2009-2014 periods are related to calibration for the flow meter at  
3 Station 66, Well 2.<sup>224</sup> In the maintenance records provided in response to data request  
4 SN2-012, it seems that only one flow meter at Station 66 needs to be replaced since there  
5 is only maintenance record for one of the flow meters at Station 66.<sup>225</sup> For the flow  
6 meters at Station 59 and 68, and 71 there was no recorded maintenance during the 2009-  
7 2014 periods.<sup>226</sup> Since there is no recorded maintenance during the 2009-2014, ORA  
8 could not determine whether the replacement of the flow meters is necessary.

9 ORA adjusted the project cost for PIDs 98953 and 98954 proportionally based on the  
10 number of flow meters ORA recommends to be replaced. CWS estimates the unit cost of  
11 the flow meter and vault based on a quote estimates, regardless of the size of the flow  
12 meter.<sup>227</sup> Since CWS uses the same unit cost for the flow meter and vault regardless of  
13 the size of meter, ORA similarly adjusted the CWS labor proportionally based on the  
14 number of flow meters ORA found appropriate to replace. ORA recommends that only  
15 one of the four flow meters associated with PID 98953 should be replaced, resulting in a  
16 budget of \$44,250 (or 25% of CWS's proposed cost of \$177,000). For PID 98954, ORA

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<sup>224</sup> CWS identifies the flow meter at Well 2 of Station 66 was calibrate once in 2014 and 2015. In addition, CWS also identifies one issue for the flow meter at Station 63 related to flow meter pen fluctuating during on the zero mark. However, the only recorded maintenance issue for the flow meter at Station 63 was resolved in 2005, and there has not been any reported maintenance or issues since then.

<sup>225</sup> CWS Response to ORA Data Request SN2-012, Q. 2.d.i.

<sup>226</sup> There was no recorded maintenance for the flow meters at Stations 59 and 68 provided in response to data request SN2-012, Q. 2.d.i.

<sup>227</sup> CWS estimates the unit cost for the flow meter vault based on an invoice provided by West Valley Construction. CWS estimates the unit cost for the flow meter based on a quote provided by Clipper Controls, Incorporated.

recommends that only two of the four flow meters should be replaced, resulting in a budget of \$92,980 (or half of CWS's proposed cost of \$185,960).

***h. Meter replacement program (PID STK0900)***

**Table 6-G** below lists CWS's requests and ORA's recommendation on the replacement budget of small and large meters in the Stockton district. ORA provides a discussion of its recommendation in its Report on Plant– Common Issues.

**Table 6-G: Meter Replacement Budgets – Stockton District**

District:		Stockton	
YEAR	PID	ORA's Recommendation	CWS's Proposal
2016	STK0900	\$ 229,983	\$ 295,599
2017	STK0900	\$ 235,410	\$ 302,989
2018	STK0900	\$ 240,778	\$ 310,565

**2. Non-Specific Budgets for 2016-2018**

CWS requests approximately \$3,858,400, \$3,949,200, and \$4,039,300 in 2016-2018, respectively to address unforeseen, unplanned, emergency projects, and regulatory compliant projects. ORA's Report on Plant - Common Issues presents its recommended total disallowance of this budget.

**3. Carry-Over Budget**

***a. Panelboard replacement at St. 7 (PID 63436)***

Originally, PID 63436 was scheduled to be placed into service in 2014. PID 63436 was delayed in conjunction with the replacement of flow meters at Stations 7 and 16 (PIDs 63233 and 63215) to determine the optimal location to place the new equipment. In

1 addition, the company also acknowledges that there was additional delay in this project  
2 due to scheduling priorities from the project manager/designer in their involvement in the  
3 Hexavalent Chromium treatment projects.<sup>228</sup> CWS anticipates that this project will now  
4 be placed into service in 2016. ORA moved the in-service year for this carryover project  
5 to 2016.

6 In addition, CWS provides a revised budget of \$197,555, which is higher than the settled  
7 budget of \$186,734 for this project.<sup>229</sup> CWS acknowledges that the revised cost is the  
8 original proposed cost of the project.<sup>230</sup> According to CWS, there is no change in the  
9 scope of this project.<sup>231</sup> Since there is no change in the scope of the project, ORA  
10 recommends maintaining the cost of the project settled upon in the last rate case.

11 *b. Flow meter replacement at St. 7 and 16 (PIDs 63433 and 63215)*

12 As mentioned previously, the installation of the flow meters at Stations 7 and 16 was  
13 delayed due to the company determining the optimal location to install the new  
14 equipment.<sup>232</sup> CWS decided to install the flow meters at Stations 7 and 16 as originally  
15 intended.<sup>233</sup> According to the company, the flow meters are expected to be placed into  
16 service in early 2016. CWS expects some delay in the project schedule due to additional

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<sup>228</sup> CWS Response to ORA Data Request JMI-005, Q. 2.b.ii.

<sup>229</sup> D.14-08-011, Attachment A, page 342.

<sup>230</sup> CWS Response to ORA Data Request JMI-005, Q. 2.b.iii.

<sup>231</sup> Ibid, Q. 2.b.iv.

<sup>232</sup> PID 63215 and PID 63433 were originally scheduled to be placed into service in 2013 and 2014, respectively.

<sup>233</sup> CWS Response to ORA Data Request JMI-005, Q. 2.a.i.



1 time is required for design and lead time necessary to obtain equipment. In addition,  
2 ORA revised the in service year for both PIDs 63433 and 63215 to 2016.

#### 3 **4. 2015 Capital Budget**

4 CWS requests approximately \$11,890,967 for plant additions in 2015, which consists of  
5 projects authorized for 2015 in the last GRC and projects authorized from previous  
6 GRCs.<sup>234</sup> ORA's Report on Plant – Common Issues on the 2015 Budget provides the  
7 recommended 2015 capital additions for Stockton.

#### 8 **D. CONCLUSION**

9 ORA's recommendations presented above have been incorporated in the calculations for  
10 estimated Plant in Service as shown in Table 7-1 in its Company-wide Report, Appendix  
11 RO.

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<sup>234</sup> Stockton Discovery 2015 workpaper, WP8B2 tab.

## Chapter 7: Depreciation Reserve and Expense

### A. INTRODUCTION

This chapter presents ORA's analyses and recommendations for the depreciation accrual rates, depreciation reserve and expense for Test Year 2017 and Escalation Year 2018.

### B. SUMMARY OF RECOMMENDATIONS

Differences between CWS's and ORA's depreciation estimate are primarily due to the recommended annual depreciable plant, which is dependent on the recommended plant additions. Refer to the individual Utility Plant in Service district chapter in the ORA's Reports on Plant regarding ORA's recommendation on utility plant additions.

In addition, ORA recommends the following adjustments for the following districts:

- Antelope Valley: ORA recommends using a depreciation accrual rate of 10.01% for the Water Treatment Equipment asset account and 7.59% for the Meter asset account for 2017 and 2018.
- Bayshore: ORA recommends using a depreciation accrual rate of 2.25% for the Transmission and Distribution asset account for 2017 and 2018.
- Bear Gulch: ORA recommends using a depreciation accrual rate of 2.11% for the Transmission and Distribution asset account for 2017 and 2018.
- Livermore: ORA recommends using a depreciation accrual rate of 2.14% for the Transmission and Distribution asset account for 2017 and 2018.
- Redwood Valley- Coast Springs: ORA recommends using a depreciation accrual rate of 2.03% for the Transmission and Distribution asset account for 2017 and 2018.
- Redwood Valley- Lucerne: ORA recommends using a depreciation accrual rate of 0.37% for the Meters asset account for 2017 and 2018.
- Westlake: ORA recommends using a depreciation accrual rate of 4.62% for the Services asset account for 2017 and 2018.

1        **C. DISCUSSION**

2        In the last rate case (A.12-07-007), ORA and CWS agreed to a set of depreciation accrual  
3        rates for each district. In this rate case, CWS used the depreciation accrual rates  
4        approved in the previous rate case for 2015 and 2016 depreciation accrual. CWS  
5        proposes a new set of depreciation accrual rates for 2017 and 2018 based on a  
6        depreciation study conducted by Earl Robinson of AUS Consultants.<sup>235</sup> **Table 7-A**  
7        compares CWS's proposed and adopted depreciation composite accrual rates.

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<sup>235</sup> Three depreciation reports were provided as part of this rate case application. AUS consultants divided the districts and service areas into three areas: Dominguez, Metro, and Valley. The Dominguez report consists of the Antelope Valley, Kern River Valley, and Redwood Valley districts. The Metro report consisted of the Bayshore, Bear Gulch, East Lost Angeles, General Office, Hermosa-Redondo, Livermore, Los Altos, Palos Verdes, Rancho Dominguez, and Westlake districts. The Valley report consists of the Bakersfield, Chico, Dixon, King City, Marysville, Oroville, Salinas, Selma, Stockton, Visalia, and Willows districts.

**Table 7-A: CWS's Depreciation Composite Accrual Rate<sup>236</sup>**

District	Current Composite Rate	Proposed Composite Rate
Antelope Valley	3.69%	3.71%
Bakersfield	3.19%	3.19%
Bayshore	3.13%	3.01%
Bear Gulch	2.94%	2.86%
Chico	3.16%	3.20%
Dixon	2.59%	3.33%
Dominguez	2.66%	2.92%
East Los Angeles	3.23%	2.86%
General Office	10.72%	7.97%
Hermosa Redondo	2.53%	3.40%
Kern River Valley	4.24%	3.49%
King City	3.28%	3.43%
Livermore	3.41%	3.08%
Los Altos	3.17%	3.19%
Marysville	3.10%	3.96%
Oroville	3.60%	3.42%
Palos Verdes	2.90%	2.70%
Rancho Dominguez	5.14%	11.07%
Redwood Valley	2.87%	3.73%
Salinas	3.22%	3.46%
Selma	3.09%	3.32%
Stockton	3.06%	3.29%
Visalia	3.21%	3.26%
Westlake	3.05%	3.09%
Willows	3.16%	3.42%

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<sup>236</sup> CWS Group Dominguez Depreciation Study at December 31, 2013, pages 1-9 to 1-10. CWS Group Metro Depreciation Study at December 31, 2013, pages 1-8 to 1-9. CWS Group Valley Depreciation Study at December 31, 2013, pages 1-8 to 1-9.

1 The depreciation accrual rate for each plant asset account (and composite rate) is  
2 calculated by the summation of the plant accrual rate, cost of removal accrual rate, and  
3 salvage accrual rate. The adjustments listed below take into account the cost of removal,  
4 salvage, and plant assets being placed into service. ORA does not oppose the method  
5 used to calculate the composite accrual rate. ORA made adjustments to the individual  
6 plant asset account accrual rates used to calculate individual plant asset category  
7 depreciation accrual in various districts. Discrepancies between CWS's and ORA's  
8 recommendations on the depreciation rates for the individual plant accounts (including  
9 cost of removal and salvage) are discussed below. The adjustments made to the  
10 individual plant asset account accrual rates and annual plant additions, result in a revised  
11 district depreciation accrual.<sup>237</sup> **Table 7-B** below shows ORA's recommended  
12 adjustments to the individual plant asset category depreciation accrual rates described  
13 below (marked in red).<sup>238</sup> **Table 7-C** below shows a comparison of the CWS's and  
14 ORA's recommendations on the annual depreciation accrual by district.

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<sup>237</sup> Refer to the individual Utility Plant in Service district chapter in the ORA Reports on Plant regarding ORA's recommendation on utility plant additions.

<sup>238</sup> Except where noted, same as the district Discovery 2015 workpaper, WP9B2 Proposed tab.

**Table 7-B: ORA's recommended Depreciation Accrual Rates**

**Antelope Valley**

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	0.00%	0.00%	0.00%	0.00%
103120	103120-Collect & Impound Reservoirs	0.00%	0.00%	0.00%	0.00%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	2.85%	2.26%	0.00%	5.11%
103160	103160-Supply Mains	13.01%	0.06%	-0.31%	12.76%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	3.36%	0.15%	0.00%	3.51%
103240	103240-Pumping Equipment	6.16%	0.58%	-0.11%	6.63%
103241	103241-System Ctrl Computer Equip	6.16%	0.58%	-0.11%	6.63%
103250	103250-Other Pumping Plant	0.00%	0.00%	0.00%	0.00%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	0.00%	0.00%	0.00%	0.00%
<b>103320</b>	<b>WATER TREATMENT EQUIPMENT</b>	8.81%	1.53%	<b>-0.33%</b>	<b>10.01%</b>
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	3.62%	0.17%	0.00%	3.79%
103411	103411-Pavement-Trans & Dist Plant	7.99%	0.00%	0.00%	7.99%
103420	RESERVOIRS AND TANKS	5.26%	1.92%	0.00%	7.18%
103421	103421-Tank Painting	7.49%	0.00%	0.00%	7.49%
103431	TRANSMISSION AND DISTRIBUTION MAINS	1.63%	0.30%	0.00%	1.93%
103440	FIRE MAINS	0.00%	0.00%	0.00%	0.00%
103450	103450-Services-Trans & Distr Mains	1.89%	0.45%	0.00%	2.34%
<b>103460</b>	<b>103460-Meters &amp; Meter Boxes</b>	7.34%	0.38%	<b>-0.13%</b>	<b>7.59%</b>
103480	103480-Hydrants-T & D Mains	1.70%	0.28%	0.00%	1.98%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	3.45%	0.15%	0.00%	3.60%
103720	OFFICE FURNITURE AND EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103721	OFFICE EQUIPMENT - COMPUTERS	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	0.00%	0.00%	0.00%	0.00%
103740	STORES EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103750	LABORATORY EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103760	COMMUNICATION EQUIPMENT	26.75%	0.00%	0.00%	26.75%
103770	POWER OPERATED EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	7.04%	0.00%	0.00%	7.04%
103790	OTHER GENERAL PLANT	0.00%	0.00%	0.00%	0.00%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

1

## Bayshore

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	0.00%	0.00%	0.00%	0.00%
103120	103120-Collect & Impound Reservoirs	2.61%	1.44%	0.00%	4.05%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	2.27%	2.31%	0.00%	4.58%
103160	103160-Supply Mains	1.48%	0.42%	0.00%	1.90%
103164	103164-All Other -Supply Mains	0.00%	0.00%	0.00%	0.00%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	4.36%	1.20%	0.00%	5.56%
103211	103211-Pavement-Pumping Plant	7.86%	0.00%	0.00%	7.86%
103240	103240-Pumping Equipment	2.51%	0.06%	0.00%	2.57%
103241	103241-System Ctrl Computer Equip	0.00%	0.00%	0.00%	0.00%
103250	103250-Other Pumping Plant	3.13%	0.12%	0.00%	3.25%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	2.15%	0.11%	0.00%	2.26%
103320	WATER TREATMENT EQUIPMENT	1.74%	0.13%	0.00%	1.87%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	1.20%	-0.04%	0.00%	1.16%
103411	103411-Pavement-Trans & Dist Plant	-1.77%	0.00%	0.00%	-1.77%
103420	RESERVOIRS AND TANKS	1.54%	1.47%	0.00%	3.01%
103421	103421-Tank Painting	9.97%	0.00%	0.00%	9.97%
<b>103431</b>	<b>TRANSMISSION AND DISTRIBUTION MAINS</b>	<b>1.35%</b>	<b>0.90%</b>	0.00%	<b>2.25%</b>
103440	FIRE MAINS	0.00%	0.00%	0.00%	0.00%
103450	103450-Services-Trans & Distr Mains	1.22%	3.24%	0.00%	4.46%
103460	103460-Meters & Meter Boxes	3.40%	0.00%	-0.46%	2.94%
103480	103480-Hydrants-T & D Mains	1.39%	0.35%	0.00%	1.74%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	1.57%	0.59%	0.00%	2.16%
103711	103711-Driveway Pavement-Gen Plant	-12.37%	0.00%	0.00%	-12.37%
103720	OFFICE FURNITURE AND EQUIPMENT	2.26%	0.00%	-0.38%	1.88%
103721	OFFICE EQUIPMENT - COMPUTERS	9.57%	0.00%	0.00%	9.57%
103722	103722-Computer Software	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	7.11%	0.00%	-1.21%	5.90%
103740	STORES EQUIPMENT	5.37%	0.00%	0.00%	5.37%
103750	LABORATORY EQUIPMENT	7.10%	0.00%	0.00%	7.10%
103760	COMMUNICATION EQUIPMENT	1.16%	0.00%	0.00%	1.16%
103770	POWER OPERATED EQUIPMENT	3.64%	0.00%	-1.91%	1.73%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	4.50%	0.00%	0.00%	4.50%
103790	OTHER GENERAL PLANT	4.18%	0.00%	0.00%	4.18%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

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## Bear Gulch

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	1.78%	0.18%	0.00%	1.96%
103120	103120-Collect & Impound Reservoirs	2.24%	1.69%	0.00%	3.93%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.19%	0.00%	0.19%
103150	103150-Wells-Supply Plant	2.82%	3.03%	0.00%	5.85%
103160	103160-Supply Mains	1.02%	0.37%	0.00%	1.39%
103164	103164-All Other -Supply Mains	0.00%	0.00%	0.00%	0.00%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	2.54%	0.71%	0.00%	3.25%
103211	103211-Pavement-Pumping Plant	2.41%	0.00%	0.00%	2.41%
103240	103240-Pumping Equipment	2.28%	0.07%	0.00%	2.35%
103241	103241-System Ctrl Computer Equip	0.00%	0.00%	0.00%	0.00%
103250	103250-Other Pumping Plant	3.00%	0.10%	0.00%	3.10%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	1.41%	0.11%	0.00%	1.52%
103320	WATER TREATMENT EQUIPMENT	2.30%	0.21%	0.00%	2.51%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	1.36%	-0.05%	0.00%	1.31%
103411	103411-Pavement-Trans & Dist Plant	4.83%	0.00%	0.00%	4.83%
103420	RESERVOIRS AND TANKS	2.09%	1.28%	0.00%	3.37%
103421	103421-Tank Painting	14.45%	0.00%	0.00%	14.45%
<b>103431</b>	<b>TRANSMISSION AND DISTRIBUTION MAINS</b>	<b>1.44%</b>	<b>0.67%</b>	0.00%	<b>2.11%</b>
103440	FIRE MAINS	0.00%	0.00%	0.00%	0.00%
103450	103450-Services-Trans & Distr Mains	1.58%	2.73%	0.00%	4.31%
103460	103460-Meters & Meter Boxes	3.25%	-0.10%	-0.26%	2.89%
103480	103480-Hydrants-T & D Mains	1.49%	0.27%	0.00%	1.76%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	1.26%	0.58%	0.00%	1.84%
103711	103711-Driveway Pavement-Gen Plant	-72.44%	0.00%	0.00%	-72.44%
103720	OFFICE FURNITURE AND EQUIPMENT	4.33%	0.00%	-0.12%	4.21%
103721	OFFICE EQUIPMENT - COMPUTERS	7.32%	0.00%	0.00%	7.32%
103722	103722-Computer Software	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	6.97%	0.00%	-0.31%	6.66%
103740	STORES EQUIPMENT	4.76%	0.00%	0.00%	4.76%
103750	LABORATORY EQUIPMENT	2.89%	0.00%	0.00%	2.89%
103760	COMMUNICATION EQUIPMENT	2.22%	0.00%	0.00%	2.22%
103770	POWER OPERATED EQUIPMENT	4.88%	0.00%	-0.25%	4.63%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	3.48%	0.00%	0.00%	3.48%
103790	OTHER GENERAL PLANT	4.23%	0.00%	0.00%	4.23%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

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## Livermore

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	0.00%	0.00%	0.00%	0.00%
103120	103120-Collect & Impound Reservoirs	0.00%	0.00%	0.00%	0.00%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	2.72%	2.50%	0.00%	5.22%
103160	103160-Supply Mains	0.00%	0.00%	0.00%	0.00%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	3.36%	0.79%	0.00%	4.15%
103211	103211-Pavement-Pumping Plant	8.17%	0.00%	0.00%	8.17%
103240	103240-Pumping Equipment	2.55%	0.07%	0.00%	2.62%
103241	103241-System Ctrl Computer Equip	0.00%	0.00%	0.00%	0.00%
103250	103250-Other Pumping Plant	0.00%	0.00%	0.00%	0.00%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	2.25%	0.11%	0.00%	2.36%
103320	WATER TREATMENT EQUIPMENT	2.34%	0.12%	0.00%	2.46%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	1.44%	-0.01%	0.00%	1.43%
103411	103411-Pavement-Trans & Dist Plant	6.94%	0.00%	0.00%	6.94%
103420	RESERVOIRS AND TANKS	2.63%	1.27%	0.00%	3.90%
103421	103421-Tank Painting	8.86%	0.00%	0.00%	8.86%
<b>103431</b>	<b>TRANSMISSION AND DISTRIBUTION MAINS</b>	<b>1.48%</b>	<b>0.66%</b>	0.00%	<b>2.14%</b>
103450	103450-Services-Trans & Distr Mains	-9.04%	13.46%	0.00%	4.42%
103460	103460-Meters & Meter Boxes	3.22%	-0.07%	-0.33%	2.82%
103480	103480-Hydrants-T & D Mains	1.57%	0.26%	0.00%	1.83%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	2.34%	0.48%	0.00%	2.82%
103711	103711-Driveway Pavement-Gen Plant	-27.00%	0.00%	0.00%	-27.00%
103720	OFFICE FURNITURE AND EQUIPMENT	0.74%	0.00%	-0.12%	0.62%
103721	OFFICE EQUIPMENT - COMPUTERS	-16.13%	0.00%	0.00%	-16.13%
103722	103722-Computer Software	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	8.76%	0.00%	-0.45%	8.31%
103740	STORES EQUIPMENT	5.61%	0.00%	0.00%	5.61%
103750	LABORATORY EQUIPMENT	5.61%	0.00%	0.00%	5.61%
103760	COMMUNICATION EQUIPMENT	2.28%	0.00%	0.00%	2.28%
103770	POWER OPERATED EQUIPMENT	3.39%	0.00%	-0.25%	3.14%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	4.43%	0.00%	0.00%	4.43%
103790	OTHER GENERAL PLANT	3.55%	0.00%	0.00%	3.55%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%

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## Redwood Valley- Coast Springs

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	1.01%	0.11%	0.00%	1.12%
103120	103120-Collect & Impound Reservoirs	0.00%	0.00%	0.00%	0.00%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	2.99%	2.33%	0.00%	5.32%
103160	103160-Supply Mains	0.64%	0.08%	-0.06%	0.66%
103164	103164-All Other -Supply Mains	0.00%	0.00%	0.00%	0.00%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	3.18%	0.15%	0.00%	3.33%
103211	103211-Pavement-Pumping Plant	0.00%	0.00%	0.00%	0.00%
103240	103240-Pumping Equipment	3.08%	0.39%	-0.09%	3.38%
103241	103241-System Ctrl Computer Equip	0.00%	0.00%	0.00%	0.00%
103250	103250-Other Pumping Plant	0.00%	0.00%	0.00%	0.00%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	3.41%	0.15%	0.00%	3.56%
103320	WATER TREATMENT EQUIPMENT	2.87%	0.50%	-0.08%	3.29%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	3.39%	0.17%	0.00%	3.56%
103411	103411-Pavement-Trans & Dist Plant	0.00%	0.00%	0.00%	0.00%
103420	RESERVOIRS AND TANKS	2.74%	1.28%	0.00%	4.02%
103421	103421-Tank Painting	13.24%	0.00%	0.00%	13.24%
<b>103431</b>	<b>TRANSMISSION AND DISTRIBUTION MAINS</b>	<b>1.68%</b>	<b>0.35%</b>	0.00%	<b>2.03%</b>
103440	FIRE MAINS	0.00%	0.00%	0.00%	0.00%
103450	103450-Services-Trans & Distr Mains	1.73%	0.45%	0.00%	2.18%
103460	103460-Meters & Meter Boxes	0.96%	0.04%	-0.17%	0.83%
103480	103480-Hydrants-T & D Mains	1.19%	0.29%	0.00%	1.48%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	0.00%	0.00%	0.00%	0.00%
103711	103711-Driveway Pavement-Gen Plant	0.00%	0.00%	0.00%	0.00%
103720	OFFICE FURNITURE AND EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103721	OFFICE EQUIPMENT - COMPUTERS	0.00%	0.00%	0.00%	0.00%
103722	103722-Computer Software	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	0.00%	0.00%	0.00%	0.00%
103740	STORES EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103750	LABORATORY EQUIPMENT	10.54%	0.00%	0.00%	10.54%
103760	COMMUNICATION EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103770	POWER OPERATED EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	1.08%	0.00%	0.00%	1.08%
103790	OTHER GENERAL PLANT	0.00%	0.00%	0.00%	0.00%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

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## Redwood Valley- Lucerne

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	1.79%	0.11%	0.00%	1.90%
103120	103120-Collect & Impound Reservoirs	0.00%	0.00%	0.00%	0.00%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	2.82%	2.48%	0.00%	5.30%
103160	103160-Supply Mains	0.00%	0.00%	0.00%	0.00%
103164	103164-All Other -Supply Mains	0.00%	0.00%	0.00%	0.00%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	-5.21%	0.15%	0.00%	-5.06%
103211	103211-Pavement-Pumping Plant	9.67%	0.00%	0.00%	9.67%
103240	103240-Pumping Equipment	3.43%	0.38%	-0.09%	3.72%
103241	103241-System Ctrl Computer Equip	0.00%	0.00%	0.00%	0.00%
103250	103250-Other Pumping Plant	0.00%	0.00%	0.00%	0.00%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	2.84%	0.15%	0.00%	2.99%
103320	WATER TREATMENT EQUIPMENT	3.66%	0.55%	-0.04%	4.17%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	0.00%	0.00%	0.00%	0.00%
103411	103411-Pavement-Trans & Dist Plant	0.00%	0.00%	0.00%	0.00%
103420	RESERVOIRS AND TANKS	2.90%	1.30%	0.00%	4.20%
103421	103421-Tank Painting	9.02%	0.00%	0.00%	9.02%
103431	TRANSMISSION AND DISTRIBUTION MAINS	0.00%	0.00%	0.00%	0.00%
103440	FIRE MAINS	0.00%	0.00%	0.00%	0.00%
103450	103450-Services-Trans & Distr Mains	1.57%	0.45%	0.00%	2.02%
103460	103460-Meters & Meter Boxes	0.43%	0.04%	-0.10%	0.37%
103480	103480-Hydrants-T & D Mains	1.38%	0.29%	0.00%	1.67%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	2.32%	0.15%	0.00%	2.47%
103711	103711-Driveway Pavement-Gen Plant	0.00%	0.00%	0.00%	0.00%
103720	OFFICE FURNITURE AND EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103721	OFFICE EQUIPMENT - COMPUTERS	32.17%	0.00%	0.00%	32.17%
103722	103722-Computer Software	0.00%	0.00%	0.00%	0.00%
103730	TRANSPORTATION	0.00%	0.00%	0.00%	0.00%
103740	STORES EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103750	LABORATORY EQUIPMENT	9.82%	0.00%	0.00%	9.82%
103760	COMMUNICATION EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103770	POWER OPERATED EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	5.33%	0.00%	0.00%	5.33%
103790	OTHER GENERAL PLANT	0.00%	0.00%	0.00%	0.00%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

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## Westlake

ACCOUNT	DESCRIPTION	Plant Rate	COR Rate	Salvage Rate	Total
Water Supply					
103110	103110-Struct & Improve-Supply Plnt	0.00%	0.00%	0.00%	0.00%
103120	103120-Collect & Impound Reservoirs	0.00%	0.00%	0.00%	0.00%
103130	LAKE, RIVER AND OTHER INTAKES	0.00%	0.00%	0.00%	0.00%
103150	103150-Wells-Supply Plant	0.00%	0.00%	0.00%	0.00%
103160	103160-Supply Mains	1.18%	0.26%	0.00%	1.44%
Pumping					
103210	103210-Struct & Imp- Pumping Plant	5.95%	1.32%	0.00%	7.27%
103211	103211-Pavement-Pumping Plant	7.16%	0.00%	0.00%	7.16%
103240	103240-Pumping Equipment	2.61%	0.07%	0.00%	2.68%
103241	103241-System Ctrl Computer Equip	2.61%	0.07%	0.00%	2.68%
103250	103250-Other Pumping Plant	0.00%	0.00%	0.00%	0.00%
Treatment					
103310	STRUCTURES AND IMPROVEMENTS	0.00%	0.00%	0.00%	0.00%
103320	WATER TREATMENT EQUIPMENT	0.00%	0.00%	0.00%	0.00%
Transmission and Distribution					
103410	STRUCTURES AND IMPROVEMENTS	1.34%	-0.02%	0.00%	1.32%
103420	RESERVOIRS AND TANKS	2.28%	1.05%	0.00%	3.33%
103421	103421-Tank Painting	10.19%	0.00%	0.00%	10.19%
103431	TRANSMISSION AND DISTRIBUTION MAINS	1.29%	0.66%	0.00%	1.95%
103440	FIRE MAINS	1.56%	-0.52%	0.00%	1.04%
<b>103450</b>	<b>103450-Services-Trans &amp; Distr Mains</b>	<b>1.92%</b>	2.70%	0.00%	<b>4.62%</b>
103460	103460-Meters & Meter Boxes	3.42%	-0.17%	-0.31%	2.94%
103480	103480-Hydrants-T & D Mains	1.38%	0.22%	0.00%	1.60%
General Plant					
103710	STRUCTURES AND IMPROVEMENTS	2.68%	0.49%	0.00%	3.17%
103720	OFFICE FURNITURE AND EQUIPMENT	2.89%	0.00%	-0.12%	2.77%
103721	OFFICE EQUIPMENT - COMPUTERS	-11.35%	0.00%	0.00%	-11.35%
103722	103722-Computer Software	-14.43%	0.00%	0.00%	-14.43%
103730	TRANSPORTATION	7.82%	0.00%	-0.76%	7.06%
103740	STORES EQUIPMENT	-5.19%	0.00%	0.00%	-5.19%
103750	LABORATORY EQUIPMENT	0.24%	0.00%	0.00%	0.24%
103760	COMMUNICATION EQUIPMENT	-4.72%	0.00%	0.00%	-4.72%
103770	POWER OPERATED EQUIPMENT	0.00%	0.00%	0.00%	0.00%
103780	TOOLS, SHOP AND GARAGE EQUIPMENT	4.04%	0.00%	0.00%	4.04%
103790	OTHER GENERAL PLANT	-2.77%	0.00%	0.00%	-2.77%
103900	OTHER TANGIBLE PLANT	0.00%	0.00%	0.00%	0.00%
103910	UTILITY PLANT PURCHASED	0.00%	0.00%	0.00%	0.00%

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**Table 7-C: 2017-2018 Depreciation Accrual<sup>239</sup>**

**2017**

District	CWS	ORA	CWS>ORA
Antelope Valley	\$ 511,269	\$ 480,960	\$ 30,310
Bakersfield	\$ 10,596,923	\$ 9,732,490	\$ 864,433
Bayshore	\$ 6,931,566	\$ 6,224,051	\$ 707,515
Bear Gulch	\$ 4,712,490	\$ 4,147,472	\$ 565,018
Chico	\$ 3,911,331	\$ 3,789,699	\$ 121,632
Dixon	\$ 447,750	\$ 434,337	\$ 13,413
Dominguez	\$ 4,202,786	\$ 2,970,695	\$ 1,232,091
East Los Angeles	\$ 3,091,698	\$ 2,675,658	\$ 416,040
General Office	\$ 10,543,472	\$ 7,142,192	\$ 3,401,280
Hermosa Redondo	\$ 2,886,359	\$ 2,680,397	\$ 205,962
Kern River Valley	\$ 1,054,299	\$ 945,349	\$ 108,950
King City	\$ 618,277	\$ 571,124	\$ 47,153
Livermore	\$ 2,469,453	\$ 2,222,833	\$ 246,620
Los Altos	\$ 3,073,427	\$ 2,842,558	\$ 230,869
Marysville	\$ 532,813	\$ 523,529	\$ 9,285
Oroville	\$ 710,631	\$ 652,370	\$ 58,261
Palos Verdes	\$ 2,719,906	\$ 2,378,200	\$ 341,706
Rancho Dominguez	\$ 113,964	\$ 90,174	\$ 23,789
Redwood Valley	\$ 448,160	\$ 422,732	\$ 25,429
Salinas	\$ 5,992,689	\$ 5,402,494	\$ 590,195
Selma	\$ 895,270	\$ 823,548	\$ 71,722
Stockton	\$ 4,969,985	\$ 4,162,213	\$ 807,773
Visalia	\$ 4,995,265	\$ 4,617,400	\$ 377,865
Westlake	\$ 1,064,582	\$ 1,011,950	\$ 52,631
Willows	\$ 276,970	\$ 263,138	\$ 13,832
Total	\$ 77,771,334	\$67,207,562	\$10,563,773

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<sup>239</sup> Table 9 Depr workpaper. The depreciation accrual shown does not include depreciation for transportation and contributed plant.

District	CWS	ORA	CWS>ORA
Antelope Valley	\$ 515,007	\$ 476,568	\$ 38,438
Bakersfield	\$ 11,668,579	\$ 10,027,222	\$ 1,641,356
Bayshore	\$ 7,277,374	\$ 6,380,369	\$ 897,004
Bear Gulch	\$ 5,191,687	\$ 4,245,479	\$ 946,208
Chico	\$ 3,908,782	\$ 3,786,085	\$ 122,697
Dixon	\$ 457,437	\$ 440,207	\$ 17,230
Dominguez	\$ 4,328,078	\$ 3,005,564	\$ 1,322,514
East Los Angeles	\$ 3,404,365	\$ 2,733,840	\$ 670,526
General Office	\$ 11,183,454	\$ 7,095,432	\$ 4,088,022
Hermosa Redondo	\$ 3,315,268	\$ 2,711,607	\$ 603,661
Kern River Valley	\$ 1,073,903	\$ 945,453	\$ 128,451
King City	\$ 700,586	\$ 613,867	\$ 86,719
Livermore	\$ 2,597,935	\$ 2,299,880	\$ 298,055
Los Altos	\$ 3,228,966	\$ 2,938,660	\$ 290,306
Marysville	\$ 528,989	\$ 522,384	\$ 6,606
Oroville	\$ 751,277	\$ 686,431	\$ 64,847
Palos Verdes	\$ 2,969,659	\$ 2,419,400	\$ 550,259
Rancho Dominguez	\$ 118,184	\$ 90,415	\$ 27,768
Redwood Valley	\$ 466,831	\$ 425,144	\$ 41,687
Salinas	\$ 6,390,179	\$ 5,531,959	\$ 858,220
Selma	\$ 932,981	\$ 837,372	\$ 95,609
Stockton	\$ 5,797,801	\$ 4,231,134	\$ 1,566,666
Visalia	\$ 5,252,191	\$ 4,683,600	\$ 568,591
Westlake	\$ 1,102,950	\$ 1,024,586	\$ 78,364
Willows	\$ 281,433	\$ 266,379	\$ 15,054
Total	\$ 83,443,897	\$ 68,419,038	\$ 15,024,859

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3 **1. Adjustments**4 **a. Antelope Valley**

5 In the WP9B2 workpapers, the accrual rates for plant, cost of removal, and salvage for  
6 each asset category are hardcoded. ORA reviewed the 2013 Dominguez Tables\_Updated

1 6-2-15 workpaper, for the accrual rates for the individual asset categories for the  
2 Antelope Valley district.<sup>240</sup> ORA identified two inconsistencies with the salvage accrual  
3 rates for the Water Treatment Plant Equipment (Account # 103320) and the Meters  
4 (Account #103460) asset accounts. In the Antelope TBL2 Salvage workpaper, the  
5 overall salvage accrual rate for Water Treatment asset account is empty (there is no  
6 calculation in cell N41). After applying the calculation used to calculate the accrual rate,  
7 the salvage accrual rate should be -0.33%.<sup>241</sup> This results in a depreciation accrual rate of  
8 10.01% (8.81% plant accrual rate + 1.53% cost of removal accrual rate + -0.33% salvage  
9 accrual rate).

10 Similarly for the Meters asset account, the overall salvage accrual rate in the Antelope  
11 TBL2 Salvage workpaper is empty (cell N84). The annual salvage accrual rate should be  
12 calculated by dividing the annual accrual (no calculation in cell L84) by the original cost  
13 as of 12/31/2013 (cell C84), which results in an overall salvage accrual rate of -0.13%.  
14 This results in a depreciation accrual rate of 7.59% (7.34% plant accrual rate + 0.38%  
15 cost of removal accrual rate + -0.13% salvage accrual rate) for the Meter asset account.  
16 Based on the adjustments above, ORA recommends an overall depreciation accrual rate  
17 of 10.01% and 7.59% for the Water Treatment Equipment and Meter asset accounts,  
18 respectively.

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<sup>240</sup> The accrual rate for the individual plant asset categories are shown in the Antelope TBL2 Plant, Antelope TBL COR, and Antelope TBL2 Salvage workpapers for the plant, cost of removal and salvage accrual rates, respectively. The aforementioned workpapers are part of the 2013 Dominguez Tables\_Updated 6-2-15 workpaper.

<sup>241</sup> The salvage accrual rate is calculated by dividing the annual depreciation accrual (cell L41) by the original cost as of 12/31/2013 (cell C41). Cell L41 is empty in the Antelope TBL2 Salvage workpaper. The total annual accrual should be calculated by adding the accrual for the Water Treatment Plant-Chemical (cell L39) and Water Treatment Plant-Filters (cell L40) asset accounts.

1        *b. Bayshore*

2        In the Transmission and Distribution Mains (Account # 103431) asset account, CWS uses  
3        a depreciation accrual rate of 2.55%.<sup>242</sup> ORA reviewed the workpapers<sup>243</sup>, and identified  
4        that the workpaper only references the Transmission and Distribution Mains asset  
5        account for cast iron mains (4 inches or less) (Account 343.11) for the plant accrual  
6        rate.<sup>244</sup> **Table 7-D** shows the distribution of mains in the Bayshore district by material  
7        type.

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<sup>242</sup> CWS proposed depreciation accrual rate of 2.55% for the Transmission and Distribution Main asset account comprises of a proposed plant accrual rate, cost of removal accrual rate, and salvage accrual rate of 1.07%, 1.48%, and 0%, respectively.

<sup>243</sup> The total annual depreciation accrual rate by account is calculated in Workpaper WP9B2 Proposed.

<sup>244</sup> CWS uses a plant accrual rate of 1.07%.



**Table 7-D: Transmission and Distribution Main Materials – Bayshore District<sup>245</sup>**

**Mid-Peninsula**

Material	% of Total Mains
Asbestos Cement	46.80%
Cast Iron	39.80%
Concrete Cylinder	2.30%
Steel	1.00%
Ductile Iron	2.50%
Plastic	7.50%
Other	0.10%

**South San Francisco**

Material	% of Total Mains
Asbestos Cement	56.20%
Cast Iron	20.90%
Concrete Cylinder	0.00%
Steel	2.50%
Ductile Iron	9.30%
Plastic	10.80%
Other	0.30%

Given the respective percentages of Cast Iron mains in the two subareas, as compared to all material types of mains in this district, it is unreasonable to use only the cast iron mains to develop the plant accrual rate. In addition, CWS states that mains in the Bayshore district range in size up to 24” for the Mid-Peninsula subarea and up to 18” for the South San Francisco subarea.<sup>246</sup> Since the mains in the system do not consist solely of cast iron mains 4 inches or less, it does not make sense to base the plant rate on the Cast Iron Main (4 inches or less) asset account. ORA used the plant accrual rate based on

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<sup>245</sup> CWS Result of Operations Report- Bayshore, page 14.

<sup>246</sup> Ibid.

1 the total Account 343, which incorporates the accrual rate from all the main materials and  
2 sizes used in the district. ORA recommends using a plant accrual rate of 1.35%.

3 Similarly for the cost of removal, CWS uses a cost of removal annual accrual rate for  
4 Account 343.11 for the Transmission and Distribution Mains (Account # 103431) asset  
5 category.<sup>247</sup> ORA used the cost of removal accrual rate based on the total Account 343,  
6 which incorporates the accrual from all the main materials and sizes used in the district.  
7 ORA recommends using a cost of removal accrual rate of 0.90%. Based on the  
8 adjustments above, ORA recommends a depreciation accrual rate of 2.25% (1.35% plant  
9 accrual rate + 0.90% cost of removal accrual rate + 0% salvage accrual rate) for the  
10 Transmission and Distribution Mains asset account.

### 11 *c. Bear Gulch*

12 In the Transmission and Distribution Mains (Account # 103431) asset account, CWS uses  
13 a depreciation accrual rate of 2.17%.<sup>248</sup> ORA reviewed the workpapers<sup>249</sup>, and identified  
14 that the workpaper only references the Transmission and Distribution Main asset account  
15 for cast iron mains (4 inches or less) (Account 343.11) for the plant accrual rate.<sup>250</sup>  
16 **Table 7-E** shows the distribution of mains in the Bear Gulch district by material type.

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<sup>247</sup> CWS uses a cost of removal accrual rate of 1.48%.

<sup>248</sup> CWS proposed depreciation accrual rate of 2.17% for the Transmission and Distribution Main asset account comprises of a proposed plant accrual rate, cost of removal accrual rate, and salvage accrual rate of 1.48%, 0.69%, and 0%, respectively.

<sup>249</sup> The total annual depreciation accrual rate by account is calculated in Workpaper WP9B2 Proposed.

<sup>250</sup> CWS uses a plant accrual rate of 1.48%.

1     **Table 7-E: Transmission and Distribution Main Materials – Bear Gulch District<sup>251</sup>**

Material	% of Total Mains
Asbestos Cement	59.70%
Cast Iron	17.70%
Concrete Cylinder	0.30%
Steel	6.10%
Ductile Iron	6.00%
Plastic	10.20%
Other	0.10%

2

3     Given the percentage of Cast Iron mains, which is less than 1/5 of all the material types  
4     of mains installed in this district, it is unreasonable to use only the cast iron mains to  
5     develop the plant accrual rate. In addition, CWS states that mains in the Bear Gulch  
6     district range in size up to 24".<sup>252</sup> Since the mains in the system do not consist solely of  
7     cast iron mains 4 inches or less, it does not make sense to base the plant accrual rate on  
8     the cast iron mains (4 inches or less) asset account. ORA used the plant accrual rate  
9     based on the total Account 343, which incorporates the accrual from all the main  
10    materials and sizes used in the district. ORA recommends using a plant accrual rate of  
11    1.44%.

12    Similarly for the cost of removal, CWS uses a cost of removal annual accrual rate for  
13    Account 343.11 for the Transmission and Distribution Mains (Account # 103431) asset  
14    account.<sup>253</sup> ORA used the cost of removal accrual rate based on the total Account 343,  
15    which incorporates the accrual from all the main materials and sizes used in the district.  
16    ORA recommends using a cost of removal accrual rate of 0.67%. Based on the

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<sup>251</sup> CWS Result of Operations Report- Bear Gulch, pages 12-13.

<sup>252</sup> Ibid, page 12.

<sup>253</sup> CWS uses a cost of removal accrual rate of 0.69%.

adjustments above, ORA recommends a depreciation accrual of 2.11% (1.44% plant accrual rate + 0.67% cost of removal accrual rate + 0% salvage accrual rate) for the Transmission and Distribution Mains asset account.

*d. Livermore*

In the Transmission and Distribution Mains (Account # 103431) asset account, CWS uses a depreciation accrual rate of 2.19%. ORA reviewed the workpapers<sup>254</sup>, and identified that the workpaper only references the Transmission and Distribution Mains asset account for cast iron mains (4 inches or less) (Account 343.11) for the plant accrual rate.<sup>255</sup> **Table 7-F** shows the distribution of mains in the Livermore district by material type.

**Table 7-F: Transmission and Distribution Main Materials – Livermore District**<sup>256</sup>

Material	% of Total Mains
Asbestos Cement	63.10%
Cast Iron	3.00%
Concrete Cylinder	0.00%
Steel	2.90%
Ductile Iron	13.90%
Plastic	17.00%
Other	0.00%

Given the percentage of Cast Iron mains, which is only 3.00% of all the material types of mains installed in this district, it is unreasonable to use only the cast iron mains to

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<sup>254</sup>The total annual depreciation accrual rate by account is calculated in Workpaper WP9B2 Proposed.

<sup>255</sup> CWS uses a plant accrual rate of 1.50%.

<sup>256</sup> CWS Result of Operations Report- Livermore, page 13.

1 develop the plant accrual rate. In addition, CWS states that mains in the Livermore  
2 district range in size up to 16".<sup>257</sup> Since the mains in the system do not consist solely of  
3 cast iron mains 4 inches or less, it does not make sense to base the plant accrual rate on  
4 the cast iron main (4 inches or less) asset account. ORA used the plant rate based on the  
5 total Account 343, which incorporates the accrual from all the main materials and sizes  
6 used in the district. ORA recommends using a plant accrual rate of 1.48%.

7 Similarly for the cost of removal, CWS uses a cost of removal annual accrual rate for  
8 Account 343.11 for the Transmission and Distribution Mains (Account # 103431) asset  
9 account.<sup>258</sup> ORA used the cost of removal accrual rate based on the total Account 343,  
10 which incorporates the accrual from all the main materials and sizes used in the district.  
11 ORA recommends using a cost of removal accrual rate of 0.66%. Based on the  
12 adjustments above, ORA recommends a depreciation accrual rate of 2.14% (1.48% plant  
13 accrual rate + 0.66% cost of removal accrual rate + 0% salvage accrual rate) for the  
14 Transmission and Distribution Mains asset account.

15 *e. Redwood Valley- Coast Springs*

16 In the Transmission and Distribution Mains (Account # 103431) asset account, CWS uses  
17 a depreciation accrual rate of 2.16%. ORA reviewed the workpapers<sup>259</sup>, and identified  
18 that the workpaper only references the Transmission and Distribution Mains asset  
19 account for cast iron mains (6 to 8 inches) (Account 343.12) for the plant accrual rate.<sup>260</sup>

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<sup>257</sup> CWS Result of Operations Report- Livermore, page 13.

<sup>258</sup> CWS uses a cost of removal accrual rate of 0.69%.

<sup>259</sup> The total annual depreciation accrual rate by account is calculated in Workpaper WP9B2 Proposed.

<sup>260</sup> CWS uses a plant accrual rate of 1.80%.

1 As shown in the CS TBL2 COR workpaper, there is an annual depreciation accrual for  
2 cast iron mains (6 to 8 inches), plastic mains (6 to 8 inches), and special installation for  
3 the transmission and distribution mains category. Since the mains in the system do not  
4 consist solely of cast iron mains 6 to 8 inches, it does not make sense to base the plant  
5 accrual rate on the cast iron mains (6 to 8 inches) asset account. ORA used the plant rate  
6 based on the total Account 343, which incorporates the accrual from all the main  
7 materials and sizes used in the service area. ORA recommends using a plant accrual rate  
8 of 1.68%.

9 Similarly for the cost of removal, CWS uses a cost of removal annual accrual rate for  
10 Account 343.12 for the Transmission and Distribution Mains (Account # 103431) asset  
11 account.<sup>261</sup> ORA used the cost of removal accrual rate based on the total Account 343,  
12 which incorporates the accrual from all the main materials and sizes used in the subareas.  
13 ORA recommends using a cost of removal accrual rate of 0.35%. Based on the  
14 adjustments above, ORA recommends a depreciation accrual rate of 2.03% (1.68% plant  
15 accrual rate + 0.35% cost of removal accrual rate + 0% salvage accrual rate) for the  
16 Transmission and Distribution Mains asset account.

17 *f. Redwood Valley- Lucerne*

18 In the Meters (Account # 103460) account, CWS uses a depreciation accrual rate of  
19 0.40%. ORA reviewed the workpapers<sup>262</sup>, and identified that the workpaper only  
20 references Meter asset account for meters (1 inch or less) (Account 350.10) for the cost of

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<sup>261</sup> CWS uses a cost of removal accrual rate of 0.36%.

<sup>262</sup> The total annual depreciation accrual rate by account is calculated in WP9B2 Proposed workpaper.

1 removal accrual.<sup>263</sup> As shown in the LU TBL2 COR workpaper, there is an annual  
2 depreciation accrual for meters 1 inch or less and meters larger than 1 inch. Since the  
3 meters in the system do not consist solely of meters 1 inch or less, it does not make sense  
4 to base the cost of removal accrual rate on the meters (1 inch or less) asset account. ORA  
5 used the plant accrual rate based on the total Account 346, which incorporates the accrual  
6 from all the main materials and sizes used in the subarea. ORA recommends using a cost  
7 of removal accrual rate of 0.04%. Based on the aforementioned adjustment, ORA  
8 recommends a depreciation accrual of 0.37% (0.43% plant accrual rate + 0.04% cost of  
9 removal accrual rate + -0.10% salvage accrual rate) for the Meters asset account.

10 *g. Westlake*

11 In the Services (Account # 103450) asset account, CWS uses a depreciation accrual rate  
12 of 4.73%.<sup>264</sup> CWS used a hardcoded value of 2.03% for the plant accrual rate for the  
13 Services asset account.<sup>265</sup> The WL TBL2 Plant Only workpaper shows a calculated  
14 plant accrual rate of 1.92% for the Services asset account.<sup>266</sup> ORA used the plant accrual  
15 rate of 1.92% shown in the WL TBL2 Plant Only workpaper.<sup>267</sup> Based on the

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<sup>263</sup> CWS uses a cost of removal accrual rate of 0.07%.

<sup>264</sup> The Services asset account is for the service connection between the customer's piping and the water system's meter, service pipe, or constructed conveyance. CWS proposed depreciation accrual rate of 4.73% for the Services asset account comprises of a proposed plant rate, cost of removal rate, and salvage rate of 2.03%, 2.7%, and 0%, respectively.

<sup>265</sup> The total annual depreciation accrual rate by account is calculated in WP9B2 Proposed workpaper.

<sup>266</sup> The WL TBL 2 Plant Only workpaper calculates the plant accrual rate for each plant account for the Westlake district.

<sup>267</sup> The calculated plant accrual rate of 1.92% is consistent with the methodology CWS used to calculate the plant accrual rate for other asset accounts.

1   aforementioned adjustment, ORA recommends a depreciation accrual of 4.62% (1.92%  
2   plant accrual rate + 2.70% cost of removal accrual rate + 0% salvage accrual rate) for the  
3   Services asset account.

4       **D. CONCLUSION**

5   ORA's recommendations presented above have been incorporated in the calculations for  
6   estimated Depreciation Reserve and Expense as shown in Tables 8-1 in its Company-  
7   wide Report, Appendix RO.